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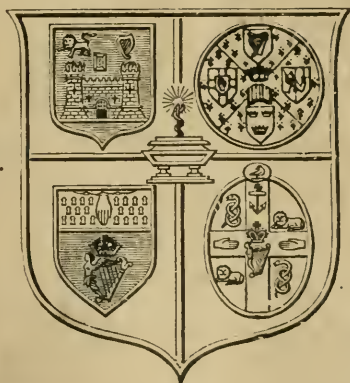
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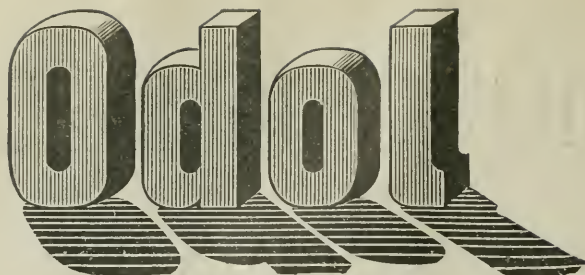
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PART I.

ORIGINAL COMMUNICATIONS.

ART. XVII.—*The Operative Treatment of Enlarged Prostate.*^a

By SIR WILLIAM THOMSON, C.B.; Surgeon to the Richmond Hospital, Dublin; Hon. Surgeon to H. M. the King.

REMOVAL of the prostate, or of portions of it, because of obstruction to urination, is a procedure which, in this country at all events, has the attractiveness of novelty. I think I may say that there are few in Dublin who have seen the operation performed, and perhaps still fewer who have themselves done it. Prostatic obstruction, with all its attendant miseries and its tendency to cause the death of the patient, has until recently been viewed as a condition impossible to cure, and the surgeon's ingenuity has been directed to palliating the victim's distress by the use of the catheter and the administration of soothing drugs.

We have almost vainly hoped for a method comparatively safe and rapid of removing for good and all the body which produced the trouble. In the efforts to attain this the late Mr. M'Gill, of Leeds, and Belfield, of Chicago, stand prominent, and others have occasionally followed their example. But somehow to the majority of surgeons the radical operative methods have not commended themselves, and in the fourteen years which have elapsed since M'Gill's reports there certainly has been

^a Read before the Section of Surgery of the Royal Academy of Medicine in Ireland, on Friday, March 6, 1903.

no general adoption of prostatectomy. If to-day British and Irish surgeons stand in the position that the principle of operative interference is accepted and practised on some approved line, I think I am right in claiming for Mr. P. J. Freyer, of London, that it is due to his strong advocacy and to the remarkably successful results which he has achieved.

I do not intend to discuss the cauterising or cutting operations upon the prostate through the urethra, by the methods of Bottini or Norton, in which the object is to remove only such portions of the gland as cause obstruction to the flow of urine. I wish to refer rather to those operations which aim at removal of the whole gland, or of adenomatous masses, which, for practical purposes, may be regarded as the gland. These may be divided into two great classes—the suprapubic and the perineal: and a sub-class may be added in which the two procedures are combined.

Suprapubic cystotomy for the removal of tumours of the wall or of stone, appears to have suggested to M'Gill, of Leeds, that a like course might be successfully pursued in regard to the prostate. His first operation was done in March, 1887, and this, with three others, was reported to the Clinical Society of London in November of the same year. His example was followed by his colleagues, and two years later he reported the results at the meeting of the British Medical Association. Twenty-four operations had been done, and the number was made up as follows:—M'Gill, 12; Atkinson, 5; Mayo Robson, 3; Jessop, 3; Pridgin Teale, 1. Of these four died, and of the remaining twenty, seven no longer required the use of a catheter and were able to expel urine normally. You will notice, therefore, that only about one-third of the surviving patients were restored to freedom of urination.

But in comparing these results with what we expect to-day, it is important to note particularly the nature of M'Gill's early operations. He says: "The growth has been removed partly by tearing with forceps and partly by a strong cutting instrument which I have devised for the purpose. This is a tedious and not very elegant proceeding; it will, if the operation prove a useful one, probably be improved. The piecemeal removal which I have practised has, however, been thus far satisfactory" ("Clin. Soc. Trans.," 1888, p. 52).

Now when we look into the details of the reported cases (*British Med. Jour.*, Oct. 19, 1889, p. 864) we find that in most instances only a partial removal was effected, and that the patient had still to run the risk of a continued growth of the parts left behind. Thus we have these descriptions of the parts removed :—(Case 2) Middle lobe, size of a bean ; (3) collar enlargement, size of a walnut ; (8) middle lobe, size of a filbert ; (12) piece the size of a small pea ; (16) middle lobe, size of a filbert. Atkinson snipped off a middle lobe with a scissors, and enucleated the lateral lobes with the finger. In the 18th case M'Gill "enucleated a portion" of the prostate ; and in the 20th, having removed the middle lobe with the forceps, enucleated the lateral lobes. These cases, therefore, were in the main partial removals by means of scissors and forceps, and the enucleation was apparently an unexpected incident arising during the operation. The fact that adenomata of the prostate could be so removed was already known. Harrison had reported such a result in the course of a perineal operation for stone. In 1878 Bickersteth, of Liverpool, in performing lateral lithotomy had shelled out an adenoma the size of a hen's egg. In 1870 Sir William Fergusson "narrated a case where, in a patient eighty years of age, after removing the stone by lithotomy, he extracted the lower part of the prostate with the finger as readily as if it had been a stone" (Harrison on "Surgical Disorders of the Urinary Organs," p. 343, 3rd Edition). Other like cases are on record.

The possibility of enucleation, then, had been known for many years, and two years after his first case M'Gill, with larger experience, laid down the principle that "the prostate should be removed as far as possible by enucleation with the fingers, and not by cutting." Nevertheless this fact and the promising successes of M'Gill and his colleagues appear to have made hardly any impression upon the surgical mind in these countries. Only here and there did their suggestions produce any effect ; there was no general acceptance, and the position may be taken as accurately described by Buckston Brown, who so lately as last year (*Brit. Med. Jour.*, March 29, 1902, p. 763) declared : "The fact is that prostatectomy has been abandoned by the

majority of surgeons as too dangerous an operation to be undertaken save under very exceptional circumstances." It was only a year ago that Freyer's reported cases and the heated controversy which they excited awoke the profession generally to the powers within our reach in this branch of surgery. The American surgeons—notably Belfield and Fuller—were not, however, unimpressed by English experiences, and in that country the operation has reached a stage of marked development.

The operation which I have carried out is that advocated by Freyer, and it is to him I owe it that I have had some success in dealing with enlargement of the prostate. The method is thorough, and it requires no instrument for the ultimate steps. The bladder is opened in the suprapubic region, having first been thoroughly washed out, and disinfected with boric lotion. A catheter is allowed to remain in as a guide to identify the urethra. The prostate having been reached, the mucous membrane is snipped or scraped through. Then two fingers of one hand are passed into the rectum to raise and fix the prostate, and the forefinger of the other is used to shell out the structure either in two or more well-defined pieces or in a single mass. This is sometimes a very laborious task, but with patience the whole obstruction can be satisfactorily removed. Bleeding is generally controlled by free douching with hot boric lotion. A large drainage tube is allowed to remain in for 48 hours, and the bladder is daily washed out. The wound is usually closed in about four or five weeks.

The operation by the perineal route consisted at first in making an incision into the urethra, and then dealing with such obstructing portions as could be removed by means of forceps or scissors. But it has now developed into an enucleation, and is much practised by American surgeons. Thus, A. B. Johnson, New York, makes a curved incision in front of the anus, and exposes the prostate by dissection. "After incision of the capsule upon either side in the direction of the fibres of the levator ani, the two halves of the gland were enucleated with the forefinger." ("Annals of Surgery," vol. 24, p. 426.) The urethra is not opened. Samuel Alexander, of New York, says: "The true breadth of the



PLATE I.



FIG. 1.

CASE I.—Lateral Lobes removed separately. Photograph shows them somewhat smaller than the natural size.

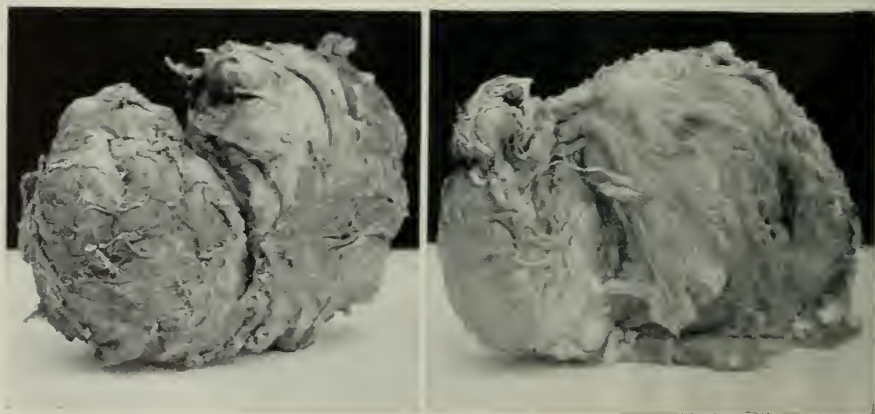


FIG. 2.

CASE II.—Right and Left Lobes of Prostate.

prostate is broken into by the finger just beneath the mucous membrane of the prostatic urethra, and the incised prostate is shelled out from within its sheath by digital dissection." ("Annals of Surgery," vol. 23, p. 334.) Nicholl and others in this country prefer the perineal operation.

The combined perineal and suprapubic operation is represented by Belfield in America. He believes that the low-level drainage thus secured avoids dangers which may attend the high operation. I have no doubt that in certain cases this combined method is admirable. It will always be of special advantage when the urine is putrid, because it enables us to secure safe tube drainage until the wounds are secure against absorption. But I am not yet prepared to adopt it as a routine method, however excellent it may be in special cases.

For reasons which I shall state later on I have selected the suprapubic operation, and the cases in which I have practised it are as follow :—

CASE I.—The patient was a gentleman, aged sixty-six, who for nearly fifteen years had suffered from frequent micturition, and who consulted me first about five years ago. Since that time he had been obliged to use the catheter two or three times a day, and on the occasions when he tried to empty the bladder without it the effort was prolonged and painful. The residual urine was from 3 to 4 ounces. The prostate could be distinctly defined by the finger, the left lobe being the larger. He frequently inquired if an operation could relieve him, but I pointed out that while he could use the catheter I should not recommend one. Later on unilateral vasectomy was performed in London without benefit. Meanwhile the difficulty of catheterisation increased. Quite recently he had a sharp attack of cystitis, and his general condition became so serious that I advised him to submit to removal of the obstruction by direct operation. He readily assented, being almost worn out mentally and physically. Assisted by Sir Thornley Stoker, Mr. Harvey, and Dr. Coleman, I opened the bladder above the pubes on February 15th. Two smooth lateral lobes were found projecting well into the cavity, with the catheter lying between. There was no middle lobe. The mass was lifted well up by two fingers of the left hand in the rectum, and the covering mucous membrane on the left side was divided so as to admit the finger tip. Keeping the nail close upon the mass it

was slowly separated from its outer covering and the urethra, and extracted. This took about twenty-five minutes. The right lobe was removed in the same way in ten minutes. Each mass came out unbroken, and enclosed in a thin, white fibrous capsule. The bleeding on the left side was sharp, but was controlled by sponge pressure and hot boric lotion. Then a large drainage tube was placed in the bladder. No sutures or ligatures were used even in the external wound. The temperature rose to 100° on the second day; afterwards it remained normal. On the twenty-seventh day 7 ounces of urine were passed per urethram. He left bed in four weeks. He can now hold urine for five hours in the daytime and all night, and he passes it in a normal stream, with full force. He describes himself as a new man.

Dr. H. C. Earl has furnished a report on the specimens, as follows :—

"Microscopically the two tumours show a very similar structure. The glands are large and numerous, some being dilated into small cysts. There is no doubt that a hyperplasia of the glands has occurred. The tissue in which the glands lie is chiefly smooth muscle, with only a very small admixture of fibrous connective tissue. The dimensions are : Right, length $1\frac{3}{4}$ in., width $1\frac{1}{4}$ in., circumference 3 in. ; Left, length $2\frac{1}{8}$ in., width $1\frac{1}{8}$ in., circumference $3\frac{1}{4}$ in. Total weight about 7 drachms."

Last month this gentleman wrote to me :—"A year ago to-day I was in your hands for operation, which you performed so successfully, and I feel that I must send you something for the Hospital (your Ward, if possible) by way of a thankoffering for all you did for me. . . . I am thankful to say that I have no trouble at all with the waterworks part of my mechanism, and you can appreciate what a relief that is."

CASE II.—A gentleman, aged seventy-five. He had been using a catheter for some years, but latterly it always produced bleeding, and sometimes he quite failed to pass the instrument. The residual urine varied from 4 to 6 ounces. There were a few granular tube casts, and a small quantity of albumen was present. Urea 7 grains to the ounce. The prostate was easily outlined in the rectum. I put before the patient, who was a medical man, all the circumstances of his case, but he said his life was miserable. At times he had from 20 to 26 calls to urinate during the night.

I accordingly operated on the 28th Sept., 1902. The lateral lobes were enucleated as before. There was no middle lobe. All went well until 48 hours later, when he had a slight cough, and râles were found present. Dr. Coleman saw him with me at once, but in spite of all our efforts the bronchial condition became worse, and he died on the fifth day. Throughout there was no trouble with the operation wound, and urine flowed freely from it. I have no doubt that the fatality was due to the irritation of the air passages set up originally by the ether, although the amount administered was small. In this case the weight of the tumour was 600 grains.

CASE III.—J. T., aged sixty-two, was admitted to the Richmond Hospital on Oct. 2. He had an enlarged prostate. He complained of great frequency of micturition day and night, sometimes as often as twice in an hour. His condition was such that he could not work. Residual urine 4 ounces; it was alkaline, and contained pus and blood cells, much epithelium, and some granular casts. He was suffering from some cystitis, and this having been allayed I operated on the 13th of October. The left lobe was removed, but an examination of the right showed it to be of normal size, and I determined not to interfere with it. The patient passed water per urethram on the 8th of November. There was a good deal of calculous deposit, which delayed the healing of the wound, and on the subsequent closure of the fistula he passed a quantity of small fragments. He is now quite free from all trouble. He sleeps for six hours undisturbed, and can pass water in a full stream.

CASE IV.—W. H., aged sixty-three; admitted to Richmond Hospital Oct. 9, 1902. For three years he has had to pass water about 14 times a day. He has been using a catheter for some time; and he was admitted for complete retention, which the medical men who saw him in the country could not relieve. Mr. Moore, the House Surgeon, succeeded in passing a catheter on his arrival. He had a bad attack of cystitis, which was treated. The residual urine was 6 ounces: it was alkaline, and contained some albumen and a very few granular casts. The arteries were very rigid. I operated on him on Nov. 10, 1902. The whole mass of the prostate came away in one piece, including the prostatic urethra, the enucleation lasting about ten minutes. There was not much hæmorrhage at the time, but it was reported at four

o'clock that there was smart bleeding. Mr. Harvey used the hot douch with some effect, but at seven the bleeding recurred. Adrenalin was then injected without avail, and I saw the patient with Mr. Harvey a little after eight. We then decided to use a compress on the prostatic site. For this purpose the patient was anæsthetised. A large plug, tied in the centre with a long silk ligature, was introduced. The ligature was attached to a catheter which had been passed, and was then withdrawn, carrying with it the silk. By traction upon this I found that the bleeding was at once stopped, and an assistant remained with the patient for this purpose. After thirty-six hours the plug was removed. Although the patient never had a temperature above 100°, the healing of the wound was delayed by the disturbance and by the calculous deposits upon the edges. He has returned home, and has no pain and no difficulty in passing water. He complained at first of some frequency, but this soon abated. The tumour weighed 932 grains, or over two ounces. (Plate II.)

CASE V.—A gentleman, aged fifty-three. For some years he has had to rise two or three times at night to pass water. About two years ago he found he had to do this in the daytime about every hour. The residual urine was about 4 ounces. It became necessary to use a rubber catheter; without it he could pass only a few drops after much straining. Sometimes he has had to rise every quarter of an hour at night. The straining often caused an evacuation of the bowel. Difficulty in passing the catheter followed; and at the time I saw him with Dr. McWilliam, in December, he was using a No. 5 Coudé catheter. He had several attacks of cystitis, and was subject to frequent rigors. He accepted the recommendation of operation, and accordingly on the 13th of January last I removed the tumour, assisted by Sir Thornley Stoker, and in presence of Dr. McWilliam, Dr. Dobbin, and Dr. Keegan. Dr. Coleman gave the anæsthetic. Unlike the other cases the lobes were irregular in outline, this being produced by adenomatous masses of varying size. They were enucleated to the number of five, three of them being of the size of walnuts. The case was the most difficult I have had, and took a considerable time; but I am glad to report that the patient never had a bad symptom, and has returned home. The case is interesting in regard to the comparative youth of the patient.

PLATE II.



Prostate, including Urethra, removed *en masse*. Catheter is passed through Urethra.



Of course the advocates of each method have fault to find with all others. Thus it is objected that the suprapubic operation is dangerous, that drainage is unsatisfactory, that extravasation of urine and sepsis are likely to take place, and that the recovery is tedious. For myself I can say that in a large number of cystotomies which I have done I have seen sepsis only once, that I have had only one death resulting from operation, and that extravasation of urine has never taken place. The recovery is tedious, but rarely exceeds five weeks.

The objections to the perineal route seem to me to be more weighty. Those who have explored the bladder through the lower central incision have probably experienced how difficult it is to reach the upper limit of a moderately enlarged prostate. Watson, of Boston, himself an advocate of this procedure, points out that an essential possession for the surgeon who adopts this method is a forefinger with a working length of three inches or more. Well, first you must have the finger; but, having it, what is the result?—that only two-thirds of the cases could be dealt with through the perineum. As McGill judiciously declared: "It is unwise to commence an operation with the probability of failing in 30 per cent. of the cases." Of course the answer will be that the surgeon in such a case could then do a suprapubic section; but, on general grounds, it is undesirable to change a method midway, and certainly better to select a plan which we can follow out to a definite conclusion. Efforts to lessen the difficulty of reaching the distant parts of the prostate by the finger through the perineal urethra have naturally been made. One is to draw it down by fingers in the rectum; another to make a small suprapubic wound, and through it push the prostate towards the perineum; and Fry passes a hollow ball into the bladder through the perineal wound, distends it with water so as to make a bulk sufficient to "hitch" against the upper vesical portion of the prostate, and then pulls it down by means of the flexible tube through which the water is passed into the ball. It looks an attractive contrivance, but I know a case in which the tube broke off on traction, and the ball was left useless in the bladder. It further seems to me that there is danger in perforating the vesical mucous membrane during the removal of the prostate through the

perineum. That structure is thin, and the finger nail can easily penetrate it. The result would be an opening through which urine would infiltrate the structures at the outlet of the pelvis, in spite of the draining by catheter through the urethral incision.

But, outside all these possible difficulties with the prostate itself, there can be no doubt that we cannot through the perineum make a complete exploration of the bladder with the finger, and that it is quite possible, as I know, to miss an encysted, or even a loose, calculus. I have seen one case which was under treatment for enlarged prostate for some years, without there being a suspicion of stone, and yet the bladder really contained over 80 calculi—many as large as marbles. There the suprapubic route for the combined operations of prostatectomy and lithotomy offered immense advantages over the perineal.

But while I am of opinion that the method which I have followed is preferable to others, I think there are cases in which operation through the perineum may be more easy. For instance, in a man with a large pendulous abdomen, the suprapubic wound is many inches deep, and unless the fat is very freely divided so that the hand can get down into proximity to the bladder, the finger will carry out the work of enucleation with great difficulty; there is, perhaps, more danger of infection, and the wound is slow to heal. Small prostates may be more easily removed through the perineum; but that route is certainly unfitted for the enucleation of some of the large masses with which we meet. The finger in such cases has to be supplemented by instruments, and the tumour instead of coming away in a well-defined mass is broken up into several pieces.

There are a few points to which I wish to call your attention as the result of my own observations:—

1. So far as I have seen, the lateral lobes are most frequently the cause of obstruction. I have not myself seen a true pedunculated mass producing a block at the internal orifice, although we have been in the habit of laying stress upon this as the most usual cause of the urinary distress.

2. The bulk of the prostate as felt in the rectum gives us no indication as to its intravesical contour. It may present two

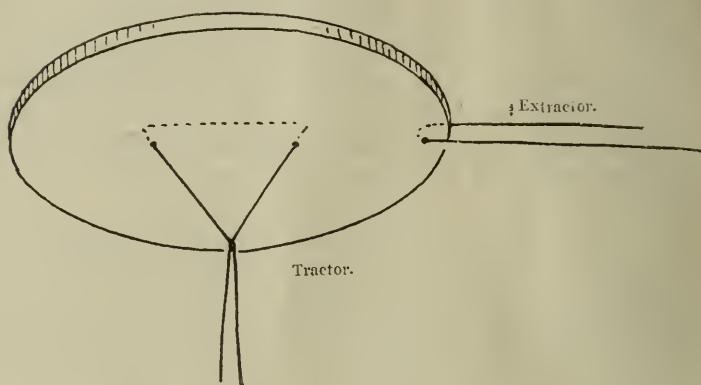
smooth lateral masses in the bladder, with the urethral opening forming a dimple between, or it may have a somewhat undulating surface, due to the projection of adenomatous tumours in the substance of the gland itself. No extravasical examination will determine the difference, although in cases where the prostate is very large its general outline may be determined by a bimanual examination—two fingers of the left hand being in the rectum, and the right fingers over the bladder.

3. The size of the prostate has no necessary relation to the severity of the urinary distress. In the case in which I removed only one lobe, which was small, the patient had had repeated attacks of retention and cystitis. His calls at night were often as many as twenty, and he was quite unfitted for work. Yet the tumour is of inconsiderable size compared with the remainder of those I show you.

4. The smaller the tumour the more difficult relatively is its enucleation. Mr. Freyer has also observed this fact, and he accounts for it by the suggestion that the large tumour shakes itself free, as it were, from its natural attachments. The prostate which I exhibit, which was removed with its urethra, took only ten minutes to enucleate. The single lobe took twenty-five minutes of hard work. I think the removal of the larger tumours is more facile because they are more bulky, looser in their attachments, and therefore more easily dealt with by the forefinger when they are pressed upwards from the rectum. The smaller ones are not so stable; they are apt to move much during the enucleating process. Added to all this there is no doubt that the attachments of the mucous membrane are more intimate, and require a good deal of cautious force to free them.

Although hæmorrhage is usually easily controlled by flushing with hot boric solution, it may be severe, owing to opening of a vein in the prostatic plexus. Bleeding has sometimes caused death, and in one of my cases I found it necessary to introduce the compress which I have described. The objection to the plugging of the bladder is that we have afterwards to remove a bulky mass, and so disturb the union which has begun. There is then risk in opening channels for inspection or extravasation. I have devised a method of dealing with the complication which, I think, will be found

effective and simple. A piece of smooth red rubber, one-sixth of an inch thick, is cut in oval shape, two inches by one and a half. A long, strong silk ligature is passed through the rubber at a point midway in its smaller diameter, and two-thirds of an inch from the edge of the larger diameter. The



needle should pass in obliquely from without. The other end of the silk is introduced in the same way half an inch from the opposite edge, and the two portions are tied together in a knot, close to the under surface of the rubber. The ends are then secured to a catheter, which has been introduced through the urethra, and the instrument is withdrawn. Pulling on the ligatures which have so been carried out through the urethra, the flexible rubber oval fits easily over the site of the prostate, and moderate traction will control the bleeding. This can be effected by attaching the traction silk to a piece of strong elastic, which is in turn secured to a turn of bandage round the lower part of the patient's thigh. The tendency to hæmorrhage, however, is not likely to continue long. In order to remove the rubber a silk ligature is passed through one end, about a quarter of an inch from the edge. Traction upon this pulls out the little plaque edgeways, and practically no disturbance of parts results. The objection to the cotton pad

suggested by Keyes is that it is complicated and cumbrous, and that adhesions occur which make the removal most painful and demand an anæsthetic. The rubber is clean, small, non-adherent, and it can be removed without difficulty.

In a discussion upon this subject in this Section last year several members declared that enucleation of the prostate, as a whole, was an anatomical impossibility. I have, in another paper (*Brit. Med. Journal*, May 31, 1902), stated the views of many surgeons upon this point. I think there can no longer be any doubt that while we often remove only adenomata, leaving behind a thin layer of the original gland, expanded and squeezed into a thin layer, we can, and do, at other times take away the whole prostate. I show you the enlarged prostate removed in one piece, and enclosing in its mass the prostatic urethra. Strange as it may seem, the patient has not suffered from the mutilation, and the same result has been observed by Freyer and other operators who have had a like experience.

The after management of these cases needs the utmost care, but the surprisingly good results which follow are worth all the time and trouble which the surgeon devotes to them.

ART. XVIII.—*The Diagnosis of Perforated Gastric Ulcer.*^a

By R. CHARLES B. MAUNSELL, M.B., B.Ch. (Univ. Dubl.) ; F.R.C.S.I. ; Surgeon to Mercer's Hospital, Dublin ; University Examiner in Surgery, Trin. Coll. Dubl.

THE importance of prompt treatment, and, therefore, of early diagnosis, of perforative peritonitis is sufficient excuse for occupying a brief period of your valuable time, even if most of that which I have to say has been already said, perhaps more than once. Reiteration is often necessary to draw attention to opinions, more especially if these opinions run counter to those previously accepted.

In March, 1901, I had the honour of making a communication before the Surgical Section of this Academy, entitled "Some Practical Points in the Diagnosis and Operative Treatment of Perforated Gastric Ulcer," giving full details of

^a Read before the Section of Medicine of the Royal Academy of Medicine in Ireland, on Friday, January 30, 1903.

four cases of my own, and generalisations from the cases of several other operators; but, although the subject of diagnosis formed a fair portion of the communication, the subsequent discussion was almost entirely limited to details in operative technique, so I determined to change the venue in the hope of learning something of the equally important details of diagnosis, both prior to opening the abdomen and also after this has been accomplished. At the same time, a short note of a complicated and successful case, which has quite recently been under my care, will serve as a text for some of the remarks.

From what one reads and hears it is evident that there are still a few physicians who look upon a surgeon as a kind of mechanic, and to these physicians two thoughts will arise: Firstly, why a surgeon should trouble about diagnosis; secondly, what right has a surgeon to think he has made a diagnosis, considering that most of these cases are seen primarily by a physician, and, as it were, labelled before the surgeon sees them? The answer to these silent queries is, that any man who operates upon a patient without carefully making his own examination and diagnosis is not only unworthy the name of surgeon, but is a distinct danger to the community. Up to the present I have operated upon five cases, three of which were primarily diagnosticated by my colleague Dr. Lumsden, and one by my friend Dr. Copley; in all five an absolute diagnosis was stated before operation, although I would not state more than perforative peritonitis in the first case. By strictly adhering to this rule of double diagnosis, it ought to be possible to reduce considerably unnecessary or ill-planned operations.

For the purposes of diagnosis and treatment it is necessary to divide cases of gastric perforation into three main classes—viz., acute, sub-acute, and chronic—as given by Messrs. Mayo Robson and Moynihan in their really marvellous record of gastric surgery entitled “Diseases of the Stomach and their Surgical Treatment,” published in 1901; and a sub-class, to which attention was drawn in my previous communication, of which cases Nos. I. and III. were examples—viz., *cases of double onset*.

Chronic perforations are these in which protective adhesions have formed before actual perforation, and the symptoms

are either evanescent or followed by subphrenic abscess, &c. Sub-acute perforations are these in which the stomach is usually empty, the perforation small, and the limited peritonitis may either subside, leaving adhesions, or may form an abscess, or more or less slowly spread until it merges into general peritonitis.

Acute perforations are these in which none of the favourable circumstances are present, and extravasation is general from the start, and absolutely fatal unless promptly treated by operation. Double onset perforations are these in which a collection of virulent fluid or an abscess following one of the two first varieties is localised, at first in such positions as the lesser sac of peritoneum, or in the upper abdomen above the transverse colon, and secondarily bursts, causing acute general infection.

It would be quite out of the question to deal with the chronic and most of the sub-acute cases at present as they open up the vast subjects of subphrenic abscess and other interesting conditions, so we will confine our attention to the more acute varieties.

My own rather limited experience, combined with a fairly careful perusal of current journalistic Medicine and Surgery, leads me to the following tentative opinions:—

With regard to sex and age, young women between the ages of twenty and thirty are the most frequent subjects of perforation; male cases are usually rather older, and are by no means infrequent. A good practical thing to remember is, that whether a patient is male or female, young or old, perforation may be present.

The previous history of gastric ulceration may be obtained, but very frequently only dyspeptic or gastralgic symptoms are mentioned, and in a few cases even these are absent. This is not to be wondered at, considering that it is usually the rapidly forming "punched out" ulcer which leads to acute perforation. The onset of symptoms is always sudden, usually very severe, and frequently takes place during some exertion. The pain is intense, stabbing in character, or the patient feels that something has given way, and may have the sensation of trickling hot fluid; it is referred to the epigastrium, may shoot round the left hypochondrium, or

out below the left scapula, or may be felt above the clavicles : after a while it may be referred also to the right or left iliac fossa, and later may become general over the abdomen. The pain does not leave one place and shift to another, as in reflex pains, but the starting point in the epigastrium remains painful and tender ; in double onset cases iliac pain may be the first complaint in the second onset, and is likely to be mistaken for appendicitis. The pain usually doubles the patient up at first, but soon abates to a varying degree.

Collapse is a very variable symptom, some cases dying rapidly before efficient treatment can be adopted, whilst others are able to walk to hospital in a very short while after the accident, as in my fourth case ; in my third case shock was fairly marked, and in the fifth the patient became unconscious for some minutes, and was very weak for several hours. Shock tends to become less during the five or six hours following perforation.

Vomiting is common just before the onset, but usually ceases or becomes infrequent subsequently until peritonitis becomes established, when vomiting returns, becomes yellow and then black, accompanied in many cases by distressing hiccough. This black vomit, &c., is seen only in neglected cases, which by this time are practically beyond all aid. Hæmatemesis and melæna are very rare. The urine is usually passed freely and is of high sp. gr. ; the bowels are usually constipated, and enemata are liable to be retained owing to intestinal paresis, but in some cases there may be diarrhoea.

During or just after the period of shock the patient may crave for a drink, but subsequently thirst is not by any means a prominent symptom.

Upon examination we notice a rather dusky, anxious, drawn face, and an anxious, restless manner, but the patient does not toss about as in hæmorrhage ; decubitus is usually dorsal, with the knees and hips slightly flexed, and the head and shoulders slightly raised ; the respirations are shallow, rather increased in frequency and thoracic in type ; the tongue is slightly furred, but is moist ; the temperature is normal or subnormal, unless in late cases, and the pulse anything from 60 to 110, tending to increase by about five beats for each hour after the first five or six after the onset ; it is in most cases

regular and of good volume. The frequent, wiry pulse, so commonly described, means a late case with general peritonitis. The abdomen is flat in males or nulliparous females, distended in those who have borne children or have flabby abdominal muscles.

On palpation the apex beat of the heart is displaced upwards, especially in the cases with flat abdomens; the abdominal muscles are rigid, and pain is complained of on pressure over the upper abdomen. If respiration is stopped pressure can be tolerated, but as soon as respiration starts again pain is intense, and friction may be felt in a few cases.

Upon percussion tympany is practically uniform, except over the stomach, which in most cases retains its own peculiar note as, to quote from my previous paper, "a perforated and a collapsed stomach are by no means synonymous terms." Dulness may be present in the flanks, but it is only a fairly late sign; the abdominal tympany encroaches upon the thoracic area, and the liver dulness is generally greatly diminished or abolished, due, I believe, to paralytic distension of the intestines pushing up and rotating the liver, and not often, as is stated, to free gas separating that viscus from the abdominal wall.

Having got so far, some one may say we have only diagnosticated an acute "peritoneal catastrophe," and may ask for the differential diagnosis. The number of lesions which require to be differentiated in any given case depends so much upon the ability of the diagnostician that this would be a hopeless task, unless we take for granted that we recognise the case as one of perforative peritonitis, and then try to find out what has perforated.

There are two non-perforative diseases, however, which cause much difficulty, even to the most skilled; these are diaphragmatic pleurisy and acute pancreatitis.

With regard to the perforative lesions, we may roughly divide them into causes in the upper and causes in the lower abdomen, using the transverse colon as our line of division, and merely point out in general terms the lines which might be followed to reduce the diagnosis to one or a few lesions. The common causes in the lower abdomen are tubal or ovarian

abscess, perforation or gangrene of the appendix, and ulceration or sloughing of the intestines. These, in addition to their own special features and history, have some points in common which distinctly point to the lower abdomen—viz., the pain and rigidity are in the lower abdomen or referred to the umbilicus, and there may be early and increasing pain and difficulty in micturition owing to involvement of the peritoneal surface of bladder, and there is very frequently pain referred to the external genito-urinary organs. This is frequently a most remarkable and very early sign of perforation in typhoid fever. In the upper abdomen, the common things are gastric and duodenal perforation, which can hardly be differentiated from one another with certainty, and abscess of the liver or empyema and sloughing of the gall bladder and bile ducts. We could hardly now enter into the differential diagnosis of these, and will merely state that these upper abdomen lesions never cause bladder symptoms unless the case has gone so far that there is general peritonitis.

† So far we have been guessing at lesions from outside, now it is time to open the abdomen and still further perfect our diagnosis, or perhaps correct it, and as an easy method of describing this I may relate my last case, which has not yet been published :—

Miss B. K., aged twenty-seven years, was sent to me by Dr. Copley on October 10th, 1902. The history was as follows :—She stated that three years ago she got severe pain in the stomach and between the shoulders, vomiting and hæmatemesis. She was then treated in the Royal City of Dublin Hospital, and after a stay of a month in hospital she went home to the country apparently cured. About every three months after this pain occurred, and was relieved by the dispensary doctor. Lately she had returned to Dublin, and on October 9th, at 1 p.m., she ate a pork chop; at 4 30 p.m. she had some tea, and then went to the station to see off some friends. Whilst there she was suddenly seized with pain, and fainted. Her friends placed her in a cab and drove her home, where she remained that night and all next day without seeing a doctor, her friends applying turpentine stupes, and giving milk and soda and brandy. At 5 p.m. on October 10th Dr. Copley was sent for, and found her

in great pain—temp. 101°, pulse 128. He told them to immediately bring her to Mercer's Hospital, whilst he drove off to inform me. I saw the patient in hospital at 6 p.m.; the abdomen was opened at 7 p.m., and she was put back to bed before 8 p.m., the operation having lasted a little short of an hour.

As it was 26 hours since perforation took place, it would be useless describing the pre-operative diagnosis, beyond saying that it was an advanced case of general peritonitis, with very marked distension for a nullipara. Upon opening the abdomen above the umbilicus the first thing that I noticed was that no gas escaped, but that very distended and inflamed intestines protruded in a very troublesome manner. This absence of obvious escape of gas had been previously noticed in at least one of my other cases, and it must be that the presence or absence of much free gas depends upon the class of bacteria set free in the peritoneal cavity. No fluid welled from the wound, which was different from the other four cases, where abundant fluid immediately appeared. I now quickly packed off the intestines and drew down the stomach, which was distended with gas; this distension I have invariably noticed, even though the perforation is freely open. Careful search failed to reveal any perforation on the anterior wall or in the duodenum, and on turning up the transverse mesocolon no adherent or thickened spot could be felt or seen on the posterior aspect. We began to think that the diagnosis might be wrong, so I thrust my hand down into the pelvis, and found that it was full of fluid. Whilst keeping the left hand inside, an incision was rapidly made as if for appendicitis, and fluid at once flowed out, the appearance and smell of which at once pointed to the stomach as the origin, so a clip was placed on the lips of the wound, and we returned to the stomach. The appearance of peritoneal fluid arising from stomach perforation is thin and greenish at first; later greenish yellow, with numerous tripe-like flakes of lymph floating in it and adhering to the intestines, &c. The smell is not fæcal in character like in infection lower down, where the *Bacillus coli*, &c., form abundance of fæcal-smelling gases. The smell in the class of cases under consideration is a peculiar nauseating, sour smell, which always reminds me of the smell of a badly kept fowl-run. The stomach was now picked up, and the omentum freely divided along the greater curve, thus opening the lesser sac of peritoneum, and on

working deep down to the left gas and fluid gushed up, and a perforation as large as a sixpenny piece was, with difficulty, demonstrated very high up on the posterior wall almost at the junction with the œsophagus.

The operation was concluded as has been described in the previous cases, except that, owing to the tremendous paralytic distension of the stomach and intestines, it was considered necessary to incise the stomach, large intestine, and small intestine, and empty them of gas before the final douching was performed; also a wick of gauze was left, passing down to the site of the sutured perforation. This was removed in 36 hours.

The case made an absolutely uneventful recovery, the only detail in after treatment worthy of notice being that the position of the patient was frequently changed to try and ward off hypostatic lung complications.

I think it has been fairly demonstrated that diagnosis does not cease when the case is handed over to the surgeon, and yet I have not mentioned the host of complications which have to be diagnosed and promptly treated during the post-operative period.

It would be out of place in this Section to refer to operative treatment, but I would like to say that it is foolish for people to talk of doing these operations by the light of a dip candle, with the patient on a kitchen table, and no appliances except a knife, a needle and a piece of thread. Of course, any operation, even amputation at the hip-joint, can be done with a knife, a needle and a piece of thread, but it is not what can be done, but what ought to be done, which is the question for us to solve: and my conviction is, that it would be kinder to let the patient alone altogether if we are not determined enough to do a thorough operation, carefully cleaning out every infected corner of the peritoneal cavity with gauze sponges and normal saline solution.

ART. XIX.—*Clinical Report of the Gynæcological Department of the Rotunda Hospital, for the Year ending November 1st, 1902.* By R. D. PUREFOY, M.D. Dubl., F.R.C.S.I.; Master of the Hospital.

TABLE I.—LIST OF CASES TREATED.

DISEASE	Total	Cured	Relieved	Not Relieved	Died	REMARKS
VULVA—						
Vulvitis - -	7	6	1	-	-	
Eczema - -	2	2	-	-	-	
Labial cyst - -	1	1	-	-	-	
Vaginitis - -	3	2	1	-	-	
PERINEUM—						
Laceration, simple -	46	44	-	-	-	
„ complete -	7	7	-	-	-	
RECTUM—						
Cancer - -	1	-	1	-	-	
Prolapse - -	1	1	-	-	-	
URETHRA AND BLADDER—						
Cystitis - -	4	1	3	-	-	
V. V. fistula - -	-	-	-	-	-	
Caruncle - -	3	3	-	-	-	
Urethritis - -	4	3	-	-	-	
Urethral Calculus -	1	1	-	-	-	
VAGINA—						
Vaginitis - -	15	14	1	-	-	
Cysts - -	3	1	1	1	-	
Epithelioma - -	1	-	-	1	-	
Cystocele - -	9	7	1	1	-	
Rectocele - -	3	2	1	-	-	
CERVIX—						
Erosions - -	36	30	6	-	-	
Hypertrophy - -	8	5	3	-	-	
Lacerations - -	34	32	2	-	-	
Epithelioma - -	7	1	-	6	-	
Cysts - -	5	5	-	-	-	
Polypus - -	7	7	-	-	-	
UTERUS CORPUS—						
Rudimentary - -	1	-	-	-	-	
Infantile - -	1	-	-	-	-	
Uterus septus - -	1	-	-	-	-	
Pregnancy - -	24	-	-	-	-	
Abortion - -	14	14	-	-	-	

TABLE I.—LIST OF CASES TREATED.—*con.*

DISEASE	Total	Cured	Relieved	Not Relieved	Died	REMARKS
UTERUS CORPUS— <i>con.</i>						
Endometritis -	10	84	26	-	-	
Retroversion -	53	9	44	-	-	{ Pessary used in 24 cases
Retroflexion -	7	-	7	-	-	
Acute antelexion -	27	16	11	-	-	
Polypus -	6	6	-	-	-	
Carcinoma -	14	3	-	10	1	
Procidencia -	2	1	-	-	-	{ Both pregnant; one refused treatment
Prolapse -	?	-	-	-	-	
Subinvolution -	37	34	3	-	-	
Fibroids -	21	7	11	-	1	Two refused treatment
Gravid retroversion -	5	5	-	-	-	
Fixed retroversion -	11	-	11	-	-	
FALLOPIAN TUBES—						
Salpingitis -	6	-	6	-	-	
Pyosalpinx -	3	1	2	-	-	
Tubal pregnancy -	5	4	1	-	-	
OVARIES—						
Cystic -	17	-	-	-	-	
Cysts -	13	13	-	-	-	
Dermoids -	3	3	-	-	-	
Prolapse -	41	-	-	-	-	
Oöphoritis -	3	-	3	-	-	
Carcinoma -	1	-	-	1	-	
MISCELLANEOUS—						
Perimetritis -	20	3	17	-	-	
Parametritis -	6	4	1	-	1	
Hernia -	?	-	-	-	-	
Phantom tumour -	1	-	-	-	-	
Sapremia -	3	3	-	-	-	
Mastitis -	1	1	-	-	-	
Hæmatocele -	2	2	-	-	-	

AMONGST the cases illustrating diseased conditions of the external genitals recorded in my Report for the year ending November, 1902, there are none of any special rarity or calling for special notice. Eczema was met with twice—in one instance chiefly affecting the left labium; both patients were under forty years of age, and both appeared well at time of discharge from hospital. In most cases of eczema vulvæ strict attention to the condition of the vagina will be requisite to effect a cure; and in one very aggravated case

recently under my care vaginal douches containing iethyol, used several times daily, contributed largely to the patient's recovery. In three patients some degree of vaginismus was found; all were under thirty years of age; all were childless, though a few years married; in one there was a distinct history of syphilis, beginning with sores on external genitals; in all the ovaries were prolapsed; and in all very marked improvement, if not cure, followed the use of measures suitable to the uterine and vaginal disease present. That there is a neurosis, evidenced by hyperæsthesia and spasm of the introitus, apart it may be from uterine and vaginal disease, cannot be doubted, notwithstanding Tait's denial of the fact.

TABLE II.—OPERATIONS.

Alexander Adams' Operation	-	-	-	-	-	1
Colporrhaphy	-	-	-	-	-	11
Colpoperineorrhaphy	-	-	-	-	-	3
Submucous Myomata	-	-	-	-	-	6
Vesico-vaginal Fistula	-	-	-	-	-	2
Posterior Division of Cervix	-	-	-	-	-	7
Removal of Caruncle	-	-	-	-	-	3
„ Cervical Polypi	-	-	-	-	-	7
„ „ Cysts	-	-	-	-	-	5
Perineorrhaphy (Lawson Tait)	-	-	-	-	-	51
Emmet's Trachelorrhaphy	-	-	-	-	-	25
Schröder's „	-	-	-	-	-	10
Saenger's „	-	-	-	-	-	1
Colpotomy	-	-	-	-	-	1
Vaginal Hysterectomy	-	-	-	-	-	1
Abdominal Hysterectomy for Fibroids	-	-	-	-	-	8
„ „ for Cancer	-	-	-	-	-	5
Ovariectomy	-	-	-	-	-	13
Salpingo-oöphorectomy	-	-	-	-	-	3
Cœliotomy for Tubal Pregnancy	-	-	-	-	-	5
„ Exploratory	-	-	-	-	-	7
Removal of Urethral Calculus	-	-	-	-	-	1
Hysterectomy for Cancer	-	-	-	-	-	5

In the first of the cases in Table III. the patient, a healthy unmarried woman, was unaware of the existence of the uterine enlargement, and sought advice solely on account of retention

TABLE II.—VENTRAL CÆLIOTOMY; HYSTERECTOMY (FOR FIBROIDS).

No.	Name	Age	—	DISEASE	Result	REMARKS
11135	E. O'R.	36	Single	Fibroid uterus	Cured	Uterus uniformly enlarged, reaching to umbilicus.
11215	E. B.	42	Married	Multiple interstitial fibroid	"	Cervix so elongated as to protrude from vulva; uterus reaching above nearly to umbilicus.
11255	A. S.	30	—	Uterine fibroid	"	Large fibroid lying in Douglas's space.
11294	M. W.	45	—	"	"	Tumour growing from fundus uteri.
11340	E. A.	52	Married	Fibroid uterus	Died	Two small perforations in wall of bowel, possibly caused by clamps used to secure veins; uterus size of seven months' pregnancy.
11345	M. M'D.	40	—	"	Cured	—
11383	K. M'C.	43	—	Uterine fibroid	"	Tumour size of cocoa nut, chiefly involving posterior aspect of uterus.
11524	W. M.	40	—	Three large fibroids, reaching to hypochondrium	"	Parietes 3 inches thick; supra-vaginal amputation.

of urine, which occurred suddenly, owing to the uterus becoming lodged in brim of pelvis. In the second, remarkable elongation of vaginal cervix was present, and probably preceded the growth of the fibroids. In the third, the appendages of the right side were not removed; on the left side an abnormal branch of uterine artery required separate ligature. In the fourth, there was so much difficulty in opening anterior vaginal fornix that I gave up the attempt, and a small portion of cervix was left, through which, to my great surprise, I found, some weeks afterwards, two of the vaginal ligatures protruded. In the fifth, the veins were unusually large and numerous, and I fear that in applying clamps to control the bleeding from them the lesions, subsequently found in the bowel, and which caused death, must have occurred. In the sixth case, some days after the abdominal stitches had been removed, a very unusual secondary growth developed rapidly near the upper end of cicatrix, and in a week formed a projection, two inches in height, of a mushroom shape. It was removed by an elastic ligature, being quite insensitive, and was pronounced by Dr. Earl and Dr. Neville to be organised blood-clot. More than a year ago, under exactly similar conditions of time and place, a patient of mine developed such a growth after ovariectomy. Bland Sutton avers that these growths have an epithelial origin: but my cases show that this statement requires qualification. In most of these cases I derived considerable assistance in opening the vaginal fornices from the use of the forceps which I have figured in a former Report.

HYSTERECTOMY FOR CANCER.

CASE I.—E. C., single, aged sixty, had been for more than a year troubled with severe uterine bleeding, with much pain in back and left side. The body of uterus was palpably enlarged and bulging on left side, apparently from the presence of a fibroid, and the cervical canal gaping. When dilatation was nearly completed I had the great misfortune to perforate the uterine wall on right side; and as the condition of the endometrium and the history rendered the existence of cancer very probable, I removed the uterus by the abdominal route as soon as the patient could be prepared. The patient at first did well; symptoms of sepsis

developed, and death occurred within three days. The peritoneal flaps lay in such good apposition that they were not sutured ; and I deeply regret that I did not, at the time of operation, provide for vaginal drainage.

CASE II.—M. A. K., aged forty ; twenty-one years married ; suffering from excavating carcinoma of cervix ; body not enlarged ; some thickening in both broad ligaments, especially the right. The diseased tissue having been removed as thoroughly as possible, the thermo-cautery was applied, and abdominal hysterectomy performed. Satisfactory convalescence, somewhat delayed by troublesome vomiting and some suppuration in course of abdominal wound.

CASE III.—M. N., forty-two, twenty-one years married, was afflicted with a similar condition of uterus as in foregoing case, and, in addition, two ovarian cysts. One of the cysts removed furnishes a beautiful example of Rokitansky's tumour, and is now preserved in the Hospital Museum. In this case some swelling at left side, suggestive of extension to the broad ligament, was found at the time of operation to consist of adherent omentum, Fallopian tube, and coil of intestine. Convalescence very favourable.

CASE IV.—E. C., aged thirty-eight, seventeen years married, two children ; carcinoma of cervix and vaginal roof. A small patch of the disease also on posterior vaginal wall, where extremity of cervix lay in contact with it. Abdominal hysterectomy, and good recovery.

CASE V.—H. F., twenty years married, aged fifty-eight, for three years had been troubled with offensive discharge, and had been curetted three times. When she came under my observation, the cervix appeared healthy, but the uterus was distinctly enlarged and retroverted ; cavity four inches. The scrapings obtained with curette indicated malignant adenoma ; and, as the introitus vaginæ was roomy and uterus mobile, though some adhesions existed posteriorly, I performed vaginal hysterectomy, and uneventful recovery followed. The slow advance of the disease in this case is worthy of remark, and especially so the results of Dr. Neville's examination of the uterus, the report of which follows :—

“*Macroscopic Examination.*—For pathological examination and for preservation of the specimen a complete bilateral hemisection

of the uterus as removed was made. This section showed that there was a well-marked ante flexion, the measurements of the different parts being as follows:—Length of body, 6.5 c.m.; length of cervix, 4 c.m.; greatest width of body, 6 c.m. As anticipated, the macroscopically apparent disease appeared limited quite sharply to the endometrium of the body, which averaged about 1 c.m. in thickness, resting upon a clean, unbroken line of muscular wall.

“The cervical canal appears healthy, the arbor vitæ arrangement of its lining membrane being particularly well marked. Careful examination of the cervical walls show a few cysts, besides traces of some other pathological condition, but there is nowhere any superficial roughening or loss of substance.

“*Microscopic Examination* completely confirms the diagnosis made from curettings. The thickened corporeal endometrium is found to consist entirely of a malignant adeno-papillomatous growth, which shows very characteristically the typical form of that cancer. It consists of main stems of connective tissue stroma, from which secondary stems arise, these terminating in fine fimbriæ, covered by many layers of epithelium. This growth involves the endometrium of the entire body of the uterus. It nowhere penetrates the muscular walls, and stops short suddenly at the level of the internal os.

“Sections through the breadth of the cervical tissue show that here we have an unsuspected—and in no way outwardly evidenced—adeno-carcinoma occupying the depths of its muscular tissue. The specimen is therefore of pathological interest as presenting two typical forms of cancer—(1) an adeno-papilloma confined strictly to the endometrium of the body, and (2) an adeno-carcinoma confined equally strictly to the muscular portion of the cervix.”

TABLE IV.—SALPINGO-OÖPHORECTOMY.

No.	Name	Age	Disease	Operation	Result	REMARKS
—	M. O'B.	22	Pyosalpinx -	- Left	Cured	Gauze drain used
11247	M. P.	27	Ovarian cyst	- Left	„	See under “Tubal Pregnancy”
11334	N. C.	23	Uterus absent	- R. & L.	„	

SALPINGO-OÖPHORECTOMY.

In the case of M. O'B. the pus tube was ruptured in process of removal, and, after careful cleansing, a gauze drain was inserted for twenty-four hours. The clinical history, as also the local conditions in the case of M. P., suggested tubal pregnancy; and at time of operation a slightly gaping condition of the tubal ostium, as well as some clots close by, lent probability to the diagnosis, but the small ovarian cyst, also present and bound up with the tube, may have caused the above noted state of the tube and favoured a reflux of menstrual blood.

In the case of N. C. the uterus was represented by a small nodule of firm tissue, not bigger than a hazel nut; the tubes were long, attenuated, and cord-like, but both ovaries were unusually large and abounding in cysts. The menstrual menses, recurring every four weeks, was attended with much suffering, shivering and distinct rise of pulse and temperature. Complete relief followed the operation.

TUBAL PREGNANCY.

CASE I.—M. J. B., aged twenty-eight, seven years married, four children, last menstruation occurred on September 20th. Admitted to hospital, 8 o'clock p.m., on October 1st, 1901, in a condition of great prostration; rapid, feeble pulse; extreme tenderness of belly and some bleeding. During the two preceding days severe attacks of abdominal pain, attended with faintness and vomiting, had occurred. Restorative measures were used for a few days, and, during this time, a piece of decidua escaped from the vagina. The uterus, on examination, was found normal in position; body enlarged, cervix soft, and a swelling, size of a lemon, lay to left of uterus. A week after her admission cœliotomy was performed. Above and behind uterus there was a mass the size of a fist, firmly adherent to rectum, consisting of the dilated and ruptured tube and firm blood-clot, containing an ovum, about as large as a walnut. Clots in large quantity lay in and around pelvis and were carefully removed, the peritoneal cavity flushed with saline solution, and the wound closed with a peritoneal continuous silk suture and silkworm-gut through parietes. Good recovery.

CO-EXISTING UTERINE AND TUBAL GESTATION.

CASE II.—R. B., aged twenty-three, four years married. Her

two former pregnancies had ended prematurely. Had been at various times under the care of two former Presidents and a Secretary of our Section, who suggested an operation. Some months before illness to be now described consulted me, suffering from pelvic peritonitis and menorrhagia. In October, 1901, menstruation was due on the 15th, but did not occur, and some days afterwards abdominal pains began to occur fitfully, attended with irregular, slight bleedings. Nausea also, chiefly at night, and pains in breasts. On more than one occasion the abdominal pains were attended with faintness. While lying in bed micturition was sometimes difficult. On the 22nd of November I was asked to visit her; the uterus was found somewhat enlarged and pushed to the right by a soft mass lying in Douglas's space, but reaching above pelvic brim, and having on its highest point a small sensitive body, causing an easily observed projection of abdominal wall. The cervix was soft and gaping. My diagnosis was subperitoneo-pelvic pregnancy. Dr. Carton expressed the opinion that it was an ordinary pregnancy, complicated by the presence, in addition, of a swelling, ovarian or otherwise. In the end both our opinions were justified. On opening the cœlom I found a considerable mass of blood-clot, investing and concealing the tube, and covered by a layer of peritoneum, evidently continuous with the posterior layer of left broad ligament. On the summit of the swelling was placed the left ovary, forming the projection already noted when examining the patient externally. The uterus was the size of a two and a half months' pregnancy. The tube and adherent clots were removed, the peritoneal cavity washed out, and the abdomen closed. Some hours later the pulse became alarmingly rapid, but, as there were no other signs of bleeding, I attributed this, and no doubt correctly, to a small injection of morphin which had been given for the relief of pain. The subsequent convalescence was all that could be desired, but I regret to add the uterine pregnancy ended in an abortion a few weeks later. I have already, in a former Report, detailed a case of concurrent uterine and tubal pregnancy in which I operated successfully for the removal of the latter condition. The uterine pregnancy in that instance continued till the seventh month—*i.e.*, four months after the removal of the tubal gestation. The acceleration of pulse which sometimes follows the injection of morphin I have observed several times.

CASE III.—E. S., aged twenty-five, 3-para. On December 17, 1901, menstruation occurred ten days beyond the proper time, and during the next few weeks much pain and intermittent hæmorrhages took place; for the relief of which her doctor in the country curetted her. On admission to hospital, January 30, the uterus was found of normal size, displaced to the right by a swelling at the left side, of tolerably firm consistence, and adherent to uterus. I operated on February 4, finding a considerable amount of fluid and clotted blood in cœlom, the left tube distended, the fimbriated extremity surrounded by adherent clots. A hæmatoma in the ovary was turned out, and the cavity closed by a silk suture. Recovery uneventful.

CASE IV.—M. P., described under the heading "Salpingo-oöphorectomy." The conditions present in the left tube were strongly suggestive of an early tubal abortion.

CASE V.—H. F., aged twenty-four, 2-para. Patient believed herself to be seven weeks pregnant, and on May 2, 1902, was attacked with very severe pain in lower belly, accompanied by slight uterine bleeding. These continued for some hours, and, after an intermission of some days, recurred, the bleeding being then more profuse than on the first occasion. On admission to hospital, May 10, the uterus was found to be enlarged and displaced to the left by a swelling, which also occupied Douglas's space, extending nearly to the left side. At the operation, carried out shortly after, blood in some quantity was found free in abdominal cavity, and the right tube was ruptured. It was removed, the cavity flushed out, and operation completed as usual, and followed by good recovery.

It is worthy of note that these cases of tubal gestation were met with in young and parous women, in whose child-bearing no long pause had occurred, and who did not present the conditions which are so often mentioned as favouring the occurrence of extra-uterine pregnancy.

ALEXANDER ADAMS' OPERATION.

This operation was performed on a married woman, 1-para, who suffered much from backache and dysmenorrhœa, apparently due to a retroverted and somewhat adherent uterus. Under treatment these conditions underwent much improve-

ment, and it was found possible to replace the uterus; but as a pessary was badly tolerated, I determined to try the effect of shortening the round ligaments by the above-named method. The structures in question were well developed and found without difficulty; but when convalescence was established the change in the position of the uterus and the relief to the patient's sufferings were inconsiderable. A few months later we admitted a patient on whom Mr. Alexander had operated similarly five years ago. Since then she had been three times pregnant, and aborted each time at the third month. When under our observation the uterus was retroverted.

OVARIOTOMY.

In all of these, where it was practicable, I stripped peritoneum of the cyst enough to stitch over the end of pedicle. In the case of M. T., part of the parietal incision passed through omentum, too firmly adherent to be safely detached. A large cystic tumour was present at the time of delivery in the case of M. D., and six weeks subsequently its removal was undertaken, and effected without difficulty or bleeding. Very soon afterwards the pulse rose from 96 to 120, and continued at this rate for 13 hours, and gradually fell to 90, and remained quiet during convalescence. In the case of B. D., some weeks before her admission very severe abdominal pain occurred, with symptoms of peritonitis, and doubtless synchronised with the rupture of one of the dermoids. At the time of operation large quantities of gelatinous matter, evidently identical with the cyst contents, were found free in the *cœlom*. M. N. presented the very rare coincidence of double ovarian cysts with malignant disease of uterus, necessitating panhysterectomy as well as double ovariectomy. One of the cysts, as shown by the beautiful drawing executed by Dr. Paul Carton, is an example of the very rare tumour known as Rokitansky's. The other cyst was intraligamentous in growth. The uterine disease was excavating epithelioma of cervix, and was so advanced that the removal of the uterus by the vagina was impracticable. The patient was so prostrate at the conclusion of the operation that saline transfusion was carried out with much benefit, and a satisfactory convalescence followed. In the case of C. G., an ovarian cyst of

TABLE V.—OVARIOTOMY.

No.	Name	Age	Disease	Operation	Result	REMARKS
11116	M. G.	41	Cyst	R.	Cured	Patient has aortic and mitral murmurs.
11119	M. D.	24	Dermoid	L.	Cured	
11125	M. T.	31	Cyst	R.	Cured	
11153	M. D.	29	Large cyst	R.	Cured	Pregnancy at term had ended 4 weeks before admission.
11176	B. D.	49	Double dermoids	R. & L.	Cured	Closely simulated tubercular peritonitis.
11242	M. N.	42	R. & L.	Cysts	Cured	One was an example of Rokitsky's tumour; uterus removed at same time for epithelioma.
11304	E. T.	35	Dermoid	R.	Cured	Omentum adherent to bladder.
11440	E. G.	34	Intraligamentous	L.	Cured	
11467	R. K.	38	Intraligamentous	R.	Cured	
11557	C. M.	40	Cyst	L.	Cured	Twisted pedicle.
11573	E. R.	56	Very large cyst	—	Cured	Tumour caused obstruction to delivery.
11601	J. T.	37	Suppurating dermoid	R.	Recovered	

moderate size had burrowed downwards in broad ligament, and so involved the side of uterus that its separation gave rise to troublesome bleeding from uterine wall, requiring several stitches to control it. J. T. was admitted to the Maternity on account of tumour occupying pelvis and obstructing delivery. Its consistence led me to regard it as a uterine fibroid which might best be dealt with at the time by pushing it out of pelvis. This was done, though with difficulty, and easy delivery followed. Very slight pyrexia was present during the puerperium, and the patient left the hospital, promising to return in a week. Unfortunately more than two months elapsed before she did so, and her condition then of prostration and fever left little hope of saving life by any treatment. A few hours after her admission I opened the coelom and found in it quantities of purulent fluid, flaky lymph, and hair, which had escaped from a suppurating dermoid on the right side, widely adherent to brim of pelvis and cæcum. The cyst wall and pedicle had been so altered by inflammation and suppuration that no proper pedicle was distinguishable, and after copious flushing the wound was closed, no exploration of the pelvis being possible, owing to the patient's condition. Several days later a swelling was found in Douglas's space and opened per vaginam. Six weeks later the patient was allowed to return home, but her condition then did not encourage the hope of ultimate recovery.

EXPLORATORY LAPAROTOMY.

CASE I.—A. M. S., aged forty-two, admitted on account of metrorrhagia, troublesome for many months previously. A fibroid uterus of very irregular outline, and reaching nearly to navel, was easily diagnosed; and I operated with a view to performing panhysterectomy, but the portion of the uterus in the pelvis, and the numerous firm fleshy adhesions between uterus, intestines, and omentum, completely hid the appendages, and would have made the contemplated procedure so dangerous that I abandoned the idea, and closed the peritoneal cavity. Some weeks later a large uterine polypus was extruded into vagina, and its removal was followed by complete recovery.

CASE II.—B. S., aged sixty, admitted in April, 1901, complaining of loss of flesh and copious vaginal discharge, often bloody, and of

late offensive. A sloughing uterine polypus was found lying in vagina, attached to the uterine wall by a long pedicle. The uterus was somewhat enlarged. The polypus was removed, iodised phenol applied to cavity of uterus, and the patient was soon well enough to return home. In March of the following year she returned, when we found a large, firm abdominal tumour apparently originating from uterus, reaching above umbilicus, and adherent in all directions. An exploratory operation showed it to be a huge sarcomatous growth, involving uterus and intestines. Though there was no reason for suspecting it, I cannot help thinking that the beginning of the disease may have been present at the time of her first admission to hospital, and that life might have been saved if the uterus had been then removed. A very similar case is recorded in my Report of last year. An unmarried woman was admitted, suffering from offensive vaginal discharge, and through the os externum, open to about the circumference of a shilling, could be distinctly seen some sloughing tissue, which proved to be a polypus of considerable size, and apparently benign, enclosed in a cavity, consisting of the enormously dilated cervical canal. By incising and dilating the os it was possible to remove the growth piecemeal. The uterine cavity above was small, but contained some small nodular projections, the nature and importance of which I failed to recognise. The patient went home apparently in excellent health, but in a few months returned in a hopeless condition, owing to sarcoma of the uterus.

CASE III.—M. B., aged forty-three, proved, on exploration, to have malignant disease of stomach, with ascites ; pelvic organs normal.

CASE IV.—L. B., aged thirty-nine, in a very cachectic condition, with general enlargement of the belly, caused by a very irregular growth, the nature of which was not ascertainable by palpation. An exploratory opening showed numerous malignant nodules, apparently springing from left ovary.

CASE V.—C. R., aged twenty-six ; tubercular peritonitis with large quantity of ascitic fluid ; relieved by opening.

CASE VI.—A. B., aged forty-three, admitted suffering from general enlargement of belly, apparently due to fluid in a thick-walled cyst, the limits of which could not be distinctly made out. Vaginal examination did not afford any aid to diagnosis. When diarietes were incised, they were found to be incorporated with a

cyst of considerable size, evidently a multilocular ovarian cyst, and the contents consisting of flaky pus. The cavity was washed out, some secondary loculi were opened, and the whole was packed with iodoform gauze. Some weeks later an opening was made in the right flank, and the opening in front was allowed to close. For a while such improvement took place that recovery seemed possible, but after some months the patient lost ground and died. An apparently more hopeless case than this, the cyst being much larger, but with similar contents, was mentioned in one of my former Reports. In it I was able to effect vaginal drainage, and the patient, after some weeks of desperate illness, recovered, and was alive when heard of some years subsequently.

CASE VII.—K. G., aged twenty-nine, admitted with a pulse of 140, temperature 102°, complaining of weight and pain in belly. By vaginal examination irregular swellings, of varying consistency, could be felt in pelvis. On opening cœlom extensive evidence of tubercular peritonitis was found, and numerous adhesions of intestine and omentum in pelvis.

ART. XX.—*Immunity*.^a By ROBERT JAMES ROWLETTE, M.D. ;
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Ireland, Trinity College, Dublin.

ALTHOUGH some facts of immunity have been known for centuries, yet it is only within the last few years, following on the discovery of the microbic origin of most infectious diseases, that any scientific attempt has been made to search out its biologic cause. For instance, it has always been recognised that one attack of certain diseases, such as small-pox or scarlatina, protects the patient after recovery from another attack of the same disease. The first practical use made of this knowledge was the custom long in use among the Turks of inoculating with small-pox. A mild case of the disease was chosen, and a child was then infected with variolous matter. He usually developed the disease in a comparatively milder form than when he received the infection otherwise than by inoculation, but naturally this was not a rigid law, and, at any rate, he was always a source of unmodified infec-

^a A paper read before the University Biological Association, March 19, 1903.

tion to those around him. The custom, in spite of these obvious drawbacks, was undoubtedly useful, and when we remember the frightful mortality formerly due to small-pox, one cannot wonder at any means taken to prevent it. Consequently, inoculation was introduced to England and the West of Europe from Constantinople in the year 1721, and continued in use, in spite of statutory prohibition and many accidents, until well on in the last century, long after the discovery of vaccination. A friend of my own, not yet past middle life, was, as a child, inoculated with small-pox in the West of Ireland.

The next instance of artificial production of immunity was, of course, vaccination. Jenner's assumption was that vaccinia (or cow-pox) and small-pox are the same disease, modified by running in different species, and his deduction was that a patient recovered from cow-pox had a certain protection against small-pox. The deduction was at once proved to be correct, and the assumption, after a century's controversy, may now be taken as established.

In addition to these instances of acquired personal immunity, it has long been known that certain species and certain races were very insusceptible to certain diseases: and, again, that some individuals exhibit a considerable degree of immunity against diseases from which they have never suffered. For instance, dogs are not susceptible to tubercle, nor fowl to tetanus, and native races in the habitat of malaria and yellow fever do not suffer from these diseases. Again, many of us have been exposing ourselves freely for years to the contagion of such very infectious diseases as measles, scarlatina, and diphtheria without contracting them: in such cases there must be an excessive resistance or relative immunity to these infections, which probably increases with exposure. It would not be correct, however, to suppose that in any of these instances there is an *absolute* immunity. Dogs can be given tubercle: fowls can be made to contract anthrax; and none of us know what to-morrow may have in store for us in the shape of this, that, or the other infectious disease. Insusceptibility is of all degrees, varying temporarily with fatigue and other such conditions, but never amounting to an absolute immunity.

In order to get at an understanding of the biological conditions underlying the state of immunity, we shall learn most from the study of its artificial production in animals. Animals can be immunised against a disease by the continued injection of non-fatal doses of the specific organism. This is evidently the same process as takes place in a patient recovering from an infectious disease. But this is not all; bacteria grown outside the body for some time in any ordinary culture medium produce in it certain substances which on injection cause all the general, but not the local, symptoms of the disease. These substances are known as *toxins*, and similar substances are produced in the tissues during the course of a disease resulting from bacterial invasion. It is found that immunity can be produced as well by the use of these toxins prepared in culture media as when the living organisms themselves are injected.

These two methods are usually described as constituting *active* immunisation. But it is further found that the blood serum of an animal which has been highly immunised by one of these active methods can, by injection into another animal, bring about a state of immunity distinguished as *passive*.

This fact naturally suggests to us that at least part of the process of immunisation consists in the production of substances which either are hostile to the bacteria themselves (*i.e.*, *antimicrobial*) or have the power of neutralising their toxins (*i.e.*, *antitoxic*). The presence of both these classes of substances is now certain, and though a particular serum is rarely exclusively antitoxic or exclusively antimicrobial, yet it will be better to treat of the two functions separately.

To prepare an antitoxin, an animal is immunised by the continued administration of toxin, the dose being gradually increased. After a period varying from a few weeks to several months, it is found that the serum has a marked antitoxic power—that is to say, if some of the serum and some of the toxin be mixed before injection the toxin is found to have lost its power. The toxin and antitoxin have neutralised each other, each being, of course, specific to the disease under investigation. Though neither substance has yet been isolated it is held that this neutralisation is a definite chemical

process. If a sufficiently powerful antitoxin be prepared, not only will it antagonise a toxin previous to injection, but if it be injected shortly after the latter, the toxic effects are diminished or disappear.

This is what actually happens in the serum treatment of diphtheria. It is a disease in which the general symptoms are due only indirectly to the bacteria themselves through the intermediation of the circulating toxins. Consequently, these latter can be neutralised by a suitable dose of antitoxin, and the injurious effects of the disease thereby greatly diminished. It should be added that anti-diphtheritic serum is not in any sense antimicrobial, but in reality forms an excellent culture-ground for the diphtheria bacillus.

In all cases of artificial immunisation, whether active or passive, the antitoxins do not persist, but pass away in the secretions. They are found both in the urine and milk. The immunity, however, is much more permanent, and while the antitoxins disappear in weeks or months, the immunity lasts for months, or more commonly years. In natural immunity, too, antitoxins are absent. Strictly speaking, then, immunity has no relation to the presence or absence of antitoxins, which are only concerned with the nullification of bacterial poisons, but have no power of protection against the bacterial invasion itself.

When we come to study the defence of the body against bacteria, we are met with an astonishing phenomenon, first pointed out by Pfeiffer, but since extended in a marvellous way. Pfeiffer found that when a guinea-pig was immunised by the administration of cholera vibrio (the organism of Asiatic cholera) its serum obtained the power of killing and digesting these vibriones. It became markedly *antimicrobial* towards the specific organism to which it had been immunised, and possessed this property whether in the body or freshly drawn. This action is known as *bacteriolysis*.

But on experiment with other substances than bacteria it was found that a similar reaction occurred towards nearly all organic bodies. For instance, if a guinea-pig were treated for some time to injections of rabbit's blood, the guinea-pig's serum gradually gained a specific destructive power towards the rabbit's red corpuscles. This is called *hemolysis*, and is

in every way a parallel action to bacteriolysis. Simultaneously, the guinea-pig's serum obtained the power of immediately precipitating rabbit's serum. When similar experiments are conducted with spermiatic fluid it is found that the serum of the animal soon gains the power of digesting the spermatozoa of the particular species from whom the fluid has been drawn. In addition to the bacteriolytic power of the immunised serum, and probably subservient to it, are precipitating and agglutinating actions towards the specific bacteria. It is therefore evident that a number of specific, so-called, "anti-bodies" can be developed in the blood-serum by the administration of various organic bodies.

It is only necessary to suggest one or two bearings on practice of these facts. The properties just mentioned of "precipitation" and "agglutination" are made use of as specific tests for bacteria, the latter, in the case of typhoid fever, being the well-known clinical test generally called by the name of one of its early describers, M. Widal. On the other hand, the hæmolytic action of an immunised animal's serum is likely to be of great medico-legal use, as it is the only known means of distinguishing accurately the blood of different species.

But of what nature are these "anti-bodies"? Whence do they come? And to what extent are they specific?

Bacteriolytic, or to use the more general term, cytolytic, serum loses its destructive power when heated above 55° C. for half an hour. If, however, some fresh, but not specially prepared, serum be now added, its power is restored. Its action, then, is the result of two bodies—one which is stable, resistant to heat, specific; and another which is unstable, destroyed by heat, and present in normal serum. The first is known as *immune body*; the second is its *complement*. For cytolytic action both the immune body and its complement must be present.

There has long been controversy as to the origin of these substances in the body, but it may now be taken as fairly certain that both are produced by the leucocytes.

I have stated very roughly and crudely some of the most outstanding facts of immunity. It remains to mention the theories which have been put forward to account for them. Of historical interest only is the "exhaustion" theory associ-

ated with the name of Pasteur. It supposed that for successful bacterial invasion of the tissues there is necessary in them a particular pabulum; once this is exhausted it cannot be replaced. This theory is no longer able to account for the known facts, and is disproved by the phenomenon of passive immunity. The introduction of a small quantity of immune serum could not have any exhausting influence on pabulum present in the tissues or juices of the body.

The theory of "retention" associated with Chauveau's name held that the organisms themselves produce substances which finally prohibit further growth; that these hostile substances are retained in the body. Though this furnishes an explanation of some of the facts it is not sufficient. It is unlikely that active, specific chemical substances persist free in the body for years; and, as a matter of fact, as I pointed out above, antitoxins leave the body by the secretions. The blood is found to be free from antitoxin, although the system has not lost its immunity. Immunity and antitoxin appear *pari passu*; one persists and the other disappears. Not only this, but it is found that the blood serum of an immune animal is itself a very good culture-ground, showing that the cells, and not merely the juices, must be taken into account in an explanation of immunity.

More valuable by far is Metchnikoff's theory of *phagocytosis*, or, as it has become in a more developed condition, the "cellular" theory. He drew attention to the property the white corpuscles have of ingesting and destroying bacteria. In a susceptible animal this action was almost absent, in an insusceptible very marked. Undoubtedly this process, which he called *phagocytosis*, is one of the most valuable means of defence possessed by the organism. In this form, however, the theory furnishes an explanation of only a small number of the known facts of immunity. Metchnikoff, however, and his pupils have with great brilliancy endeavoured to preserve the credit of the white corpuscles by showing, and with success, that the anti-bodies are in great part produced by the leucocytes.

Originally in opposition to the "cellular" theory was the "humoral" theory held by Behring and his school. According to them the protective bodies circulated in the fluids

and were not fixed in the cells. An easy compromise between these two theories is now practically arrived at, in that the anti-bodies while secreted by the cells are actually found in the juices.

None of these theories, however, really go to the root of the matter, and it remains for Ehrlich's supposition to furnish a complete and radical explanation of the known facts, as well as to throw light for further investigation. The protoplasm of the cell may be regarded chemically as a very large and complex molecule, with various smaller atom-complexes or "side chains" attached. It is only by actual chemical combination with the cell-protoplasm that food particles can be made use of. The side-chains, of enormous number, have each a certain affinity for a particular food-molecule. The side-chain combines with food-molecule, and thus the latter is brought into relation with the cell-protoplasm.

Now, a toxin is either a proteid or a body very much resembling a proteid. It may be taken as being a complex body, made up of two atom-groups. By one of these, called by Ehrlich the *haptophore* group, it can be brought into union with a particular side-chain for which it has chemical affinity; by the other, or *toxophore* group, it exerts its toxic influences on the cell. The toxophore group has no power to act on the cell until it is brought into relation to it by the haptophore group. The latter can only unite with a side-chain for which it has chemical affinity. A certain time is necessary after this union before the toxins can begin to act on the cell.

Assume that a haptophore group and a side-chain have united. The latter is no longer any use to the cell, and is cast off. Another similar side-chain is produced, and this again is occupied by a haptophore group, and cast off. The cell continues reproducing side-chains of the same sort, but following a well-known biological law it produces too many, or *over-compensation occurs*. Unoccupied side-chains are thus cast off, and travel freely in the juices of the body. But, though no longer attached to cell-protoplasm, they retain their affinity for the haptophore group in the toxin; and so, when a free side-chain meets a toxin molecule, it unites with the haptophore group. The latter being thus occupied, it

cannot unite with a fixed side-chain, and consequently the toxophore group cannot act on cell-protoplasm; in other words, the toxin is rendered inert. *The free side-chains, according to Ehrlich, are the antitoxin.*

It will be seen that this theory brings the phenomena of antitoxins into line with well-known chemical and biological laws. The side-chains are assumed to exist for definite nutritive purposes. The principle of over-compensation is well known. That there are two groups in the toxin molecule is proved by the following observations. If tetanus toxin be injected into a guinea-pig it produces definite effects, no matter how soon it is followed by antitoxin. The side-chains of the central nervous system, which have an affinity for tetanus toxin, harbour it by its haptophore group at once, although its actual toxic effects do not occur for some hours. But if before injection the tetanus toxin be mixed with an emulsion of fresh brain of guinea-pig, it is rendered quite innocuous. Its haptophore groups have united with the side-chains in the emulsion, and on injection its toxins are powerless.

Ehrlich's theory, therefore, gives a very satisfactory explanation of the properties of *antitoxic* serums, but we must inquire how it bears on *antimicrobial* serums, and the facts of cytotoxicity.

In cytotoxicity we have to account for the specific "immune body" only, as the other necessary element, the "complement," is present in normal serum. It is probable that the latter is a ferment. Now, in the ordinary course, the cell needs the aid of ferments to break up certain of the food-molecules which reach it. For this purpose we may assume that the cell-protoplasm possesses a number of double-armed side-chains, one for the proteid food-molecule and one for the assistant ferment. Now, suppose that one of these arms has an affinity for the molecules of the invading organic element, whether bacterium, red blood cell, spermatozoon, or other body, and the other for the necessary complement, and cytotoxicity or digestion of the invading body is explained. In exactly the same manner as antitoxin is formed by single-armed side-chains, so by the production of an excessive number of double-armed side-chains is immunity attained. The free side-chains in this case are the "immune bodies."

But whence comes the persistence of immunity? How is it that the immune bodies do not, as do the antitoxins, pass away in the secretions?

There is no reason to doubt that they do so pass away, but meanwhile the cells have learned a lesson. For some time the cells continue to over-produce immune bodies, and they persist for a little after the invading bacteria have been destroyed. Thus for many months, or even longer, after an attack of typhoid fever the blood still contains agglutinins, and will clump the typhoid bacillus. Though the agglutinins are not at all identical with the immune bodies, yet there is a certain relation between them, and the presence and quantity of agglutinins afford a convenient, if rough, estimate of the anti-bodies present; but gradually the production of anti-bodies ceases. A number of the cells of the body, however, have become specialised for the production of anti-bodies, and this specialisation lasts, and on the slightest stimulation, by new bacterial invasion, or otherwise, their function again appears. Physiologically this function seems to be secretion, and it is increased by the administration of pilocarpin.

As regards natural immunity, Ehrlich's theory gives an easy explanation in two ways—there may be an entire absence of the side-chains necessary to bring about chemical union with the cell; or, on the other hand, immune bodies may be naturally present. This latter condition might be a result of the presence in the juices of food-molecules closely resembling the molecule of the invading parasite.

I said that Ehrlich's theory, in addition to explaining known phenomena, throws a light forward. If the host can protect itself by producing anti-bodies which are injurious to invading parasites, cannot the latter also produce anti-anti-bodies which protect them? This is now established as a fact by Dr. Ainley Walker, who succeeded in immunising bacteria against immune serum by the simple expedient of growing them in it. This is, as a matter of fact, what takes place in the well-known method of exalting the virulence of an organism by passing it from one animal to another of the same species. With a very different class of parasites Weinland has recently shown that intestinal worms protect themselves against the digestive juices by the production of a ferment known as

"anti-pepsin," its effect being to inhibit the normal digestive action of pepsin.

We now get an idea of the conflict which is actually waged between the invading army of parasites and the cells of the host in any bacterial disease. The victory rests with the party which can most successfully produce anti-bodies toward the other.

Time forbids me to discuss any of the interesting questions that remain. Among the most enticing of these are the parallelism between bacterial toxins and certain vegetable poisons as well as snake-venom; the relations of heredity to immunity; and, above all, the bearing of the facts of immunity on the doctrine of natural selection.

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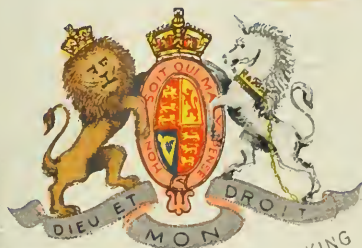
ORDINANCE AGAINST EXPECTORATION.

THE Philadelphia Councils have passed, and the Mayor has signed, an ordinance declaring expectoration on the sidewalks, in public conveyances, and in other places resorted to by the public, a nuisance and prejudicial to health, the offender or offenders being liable to a fine of one dollar and costs for each violation.—*Medical Record*, N.Y., March 28, 1903.

CLEANING SICK-ROOMS.

THE Department of Health of Chicago advocates the vacuum method of cleaning sick-rooms, saying that "consumption, pneumonia, influenza, scarlet fever, and similar diseases are known to be spread by infected dust of the sick-room, so the distinct and recognised purpose of the operation shall be to remove, and not simply to stir up, the ever-gathering dust."—*Medical News*, N.Y., March 28, 1903.

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PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

An Atlas of Illustrations of Clinical Medicine, Surgery and Pathology. Compiled for the New Sydenham Society. (A continuation of the Atlas of Pathology.) Fasciculus XV. (Double Number) or III. and IV. of New Series. Xanthelasma and Xanthoma, with especial reference to their association with Functional and Organic Diseases of the Liver. Plates A. to M. and XCII. to XCVII. Compiled by JONATHAN HUTCHINSON, F.R.C.S., F.R.S., LL.D. London : The New Sydenham Society. 1902. Folio.

THE present instalment of this new venture of the New Sydenham Society really consists of a masterly monograph, by the never weary Honorary Secretary, Mr. Jonathan Hutchinson, on Xanthelasma and Xanthoma. The author reserves the former term, originally devised by Erasmus Wilson, as a designation for the wash-leather, or chamois-leather, patches on the eyelids, to which alone it was in the first instance applied, and which differ materially from all the other types of the disease, and are but seldom present with them. He accepts the term xanthoma to designate those other types, inasmuch as some relationship with neoplasms must be admitted, and because this new name has already come into general use.

Mr. Hutchinson observes that the present Fasciculus might have been appropriately entitled—"On Disorders of the Liver Functions, as illustrated by the Affections of the Skin known as Xanthelasma and Xanthoma." The conditions grouped together under these names by no means belong to the special domain of the dermatologist, but are symptoms for the most part of liver-disease, organic or functional, and so are of the utmost interest to the general physician.

The conspicuous feature of all forms of xanthoma is the accumulation in the meshes of the corium of a fatty material, which is usually stained yellow—probably by bile-pigment.

There is, further, in varying degrees in different cases, some overgrowth of the cell structures of the affected part, leading to fibroid hypertrophy, or—shall we preferably say?—hyperplasia.

If carefully studied also, cases of this affection afford valuable insight into the laws of self-infection, of tumour growth, and of the hereditary transmission of germ-material.

Such, briefly, is the case which Mr. Hutchinson makes for the study of xanthoma, and how well he has worked it up and proved it to the hilt, reference to his monograph will prove.

The present Fasciculus does not conclude the subject. Mr. Hutchinson tells us that a number of other illustrations are in the artist's hands and will appear in a future issue. Meanwhile we are given an instalment of rich material in six coloured and thirteen uncoloured plates, while the letterpress deals with preliminary observations (from which we have drawn largely in this notice), the possible alliances of xanthoma with lichen planus, psoriasis and urticaria; descriptions of drawings and models, the mutual relationships of the several forms of xanthelasma and xanthoma, case-narratives in illustration of xanthoma palpebrarum, and of the nervous, bilious, and other phenomena which often precede it; cases occurring in children; case-narratives illustrating xanthoma occurring as a general eruption, and often attended by diabetes; and cases in association with general jaundice.

Pending the issue of a further group of illustrations, we understand that the Society's Council will feel indebted to any who may be able to supply either drawings or case-narratives which bear upon the topic of Xanthelasma and Xanthoma.

Diseases of the Skin. By H. RADCLIFFE CROCKER, M.D.
Third Edition. Two Vols. H. K. Lewis. 1903.

DR. CROCKER'S reputation as a skilled dermatologist is so high, and his book has already attained such a wide and well-deserved recognition, that there is little need to do more than remind our readers of the appearance of this, the third edition.

It now assumes the form of two volumes, with a total of nearly 1,400 pages, and is enriched by four plates and 112 illustrations.

Plates I. and II. (coloured) depict syphilides, but are not, in our opinion, as good as they might be. Plates III. and IV. represent the fungi of ringworm in the light of modern researches.

Since the second edition has been out of print, for the last three years, much labour has necessarily been expended in bringing the work up-to-date. Many of the articles have been entirely re-written, and all have been thoroughly revised, and often in great part re-cast. The result of all this is eminently satisfactory, and the practitioner who purchases Crocker's work could not possess a more thorough or more practical manual of Diseases of the Skin.

The list of new articles is a long one, and we need give only a few examples to show the watchful care and diligent research of the author. For example, acrodermatitis, X-ray dermatitis, toxin serum eruptions, bronzing of the skin in diabetes, porokeratosis, lupus marginatus, granuloma, endothelioma capitis, veldt sore, blastomycosis, &c., &c.

We can most heartily commend to our readers these volumes, which accurately mirror the present aspect of dermatology, and give full and sensible directions for treatment.

Diseases of Women : a Clinical Guide to their Diagnosis and Treatment. By GEORGE ERNEST HERMAN, M.B. Lond., F.R.C.P.; Obstetric Physician to, and Lecturer on Midwifery at, the London Hospital; Examiner in Midwifery to the University of Cambridge and the Royal College of Physicians. New and Revised Edition. Pp. xvi. and 884. With upwards of 250 Illustrations. Demy 8vo. Cloth. London: Cassell & Co. 1903.

We congratulate Dr. Herman on the appearance of a new and revised edition of his valuable text-book. From the short time that has elapsed since the publication of the first edition, it is evident that the writer has found his readers, and that the readers approve. For ourselves, we consider that the work has been heavily handicapped by its arrange

ment, and that the fact that it has succeeded shows more than anything the excellence of the teaching it contains. This makes us the more inclined to quarrel with Dr. Herman. Why should a good book be handicapped by a preposterous arrangement of subject-matter? Can anyone conceive a similar work on any other specialty, or on general medicine or surgery? What would be thought of a work on the Practice of Medicine which solemnly discussed a would-be science under the heads of symptoms—a chapter on cough, another on jaundice, another on ascites, another on diarrhœa, and so on? Such a book would be laughed out of the market, and very rightly. Why then should Gynæcology be treated in such a manner? A manner that was very proper in the days when there was no knowledge of pathology and when the examination of the patient consisted in a surreptitious peep down a speculum—but a manner which is inappropriate when used to convey the results of the experience and learning of a man of the type of Dr. Herman. The writer does not attempt to conceal the fact that he expects hostile criticism, and his excuse is that patients do not come labelled “Disease of the uterus,” or “Disease of the ovary,” but complaining of symptoms. The answer, we think, is another question. How many patients suffering from gynæcological disease complain of symptoms on which a diagnosis can be based? There are a peal of general symptoms in gynæcological diseases on which each patient rings a particular change, but any one change will rarely be found to correspond to the same pathological condition in any half-dozen patients. Dr. Herman has, however, adopted his arrangement, and we suppose there is nothing to be gained by criticising it.

There are other points in his book which we cannot criticise favourably. A number of curious pessaries, which are described, and whose use as sanctioned in prolapse of the uterus, are not, in our opinion, to be recommended to the general practitioner. Dr. Herman may be able to use them himself, and to make his patients use them in such a manner that they will not harm themselves: but in the hands of the general practitioner they are far from safe. We allude particularly to Zwanke's pessary and the various forms of cup and stem pessaries. Dr. Herman still maintains the existence of

a vaginal secretion, but safeguards himself by an incorrect use of terms—"The vaginal secretion is a transudation of albuminous fluid with shedding of the superficial layers of its epithelium." If such a fluid is a secretion we fancy that no one will deny that there is a vaginal secretion. But does a transudation from the blood vessels mixed with desquamated epithelium constitute a "secretion?"

We are glad to see that the writer unhesitatingly condemns amputation of the cervix in cases of cervical cancer; but we regret that he has the true English suspicion of the efficacy of diagnosis by the microscope. Dr. Herman also very wisely considers that Doyen's operation is the best method of performing hysterectomy, but he still recommends the use of Spencer Wells' trochar in ovariectomy.

Dr. Herman's work is full of most useful and practical information, the result of ripe experience, and what it recommends is reliable and proper. It will be found of the greatest use to general practitioners and others, and will help them—if anything can—to interpret the dismal iteration of feminine symptoms.

A Practical Handbook of Midwifery. By FRANCIS W. NICHOL HAULTAIN, M.D., F.R.C.P.E.; Lecturer on Midwifery, Edinburgh School of Medicine; Obstetrician, Royal Public Dispensary, Edinburgh. Second Edition. Entirely revised and illustrated. Pp. viii. and 253. Small 8vo. London: The Scientific Press, Ltd. 1903.

A SECOND edition of Dr. Haultain's useful little work has just appeared. It does not pretend to be anything more than an epitome of the important facts connected with the practice of obstetrics put as shortly as possible. They are, however, so clearly and fully placed before the reader that its value as a work of ready reference for the student or practitioner is considerable. The information it contains is most reliable in character, and quite up-to-date in all particulars. We note, however, that, in speaking of the treatment of accidental hæmorrhage, Dr. Haultain states that plugging the vagina has been recommended in the case of an actively contracting

uterus, and by this we assume he means in the case of a uterus which is in labour. This, however, is not quite correct.

The Dublin School is in the main responsible for the introduction of this mode of treatment, and the statistics of the Rotunda Hospital show that the results it yields are comparable with those of Braxton Hicks' method of treating placenta prævia. It has, however, been recommended and practised there, not in cases in which the patient is in labour—rupture of the membranes is the treatment adopted in such cases—but in all cases in which the patient is not in labour and in which the hæmorrhage is *external*. It is not recommended in internal hæmorrhage.

We can strongly recommend Dr. Haultain's little book as a work of ready reference. It is, perhaps, a pity that it is not more fully illustrated.

Thirtieth Annual Report of the Local Government Board, 1900-01. Supplement in continuation of the Report of the Medical Officer for 1900-01. On Lead Poisoning and Water Supplies. London: Eyre & Spottiswoode. 1903. - 8vo. Pp. xi. + 224.

VERY important and most valuable information is contained in Dr. Houston's report on moorland waters in regard to their action on lead, which occupies almost the whole of this volume.

In his introduction to the Report, Dr. W. H. Power, Medical Officer to the Local Government Board, calls attention to his own interim report on "Lead Poisoning referred to Public Water Supplies derived from Moorland Sources," published in 1895 in the Twenty-third Annual Report of the Local Government Board. Sundry inquiries made by the Board's Medical Department into the prevalence of lead poisoning attributable to water supplies were mentioned in that Report, and Dr. Power draws particular attention to reports by the late Dr. Barry and by the late Dr. T. W. Thompson, appearing in the same volume, which showed that such poisoning was known to have occurred at one time or another among a large population inhabiting various sanitary areas in the North of England, all of which are served by public water supplies

of moorland origin. In investigating the causes which produced this dangerous property in a water supply, it had been found that much uncertainty existed with regard to the conditions which increased or diminished the liability of a given moorland water to act on lead pipes, and as to the factors governing the difference between soft moorland waters which are, and others which are not, capable of dissolving lead.

The inquiry finally decided upon to clear up the matter was entrusted to Dr. Alex. Cruikshank Houston. He has carried on researches through several years, and has finally classified and reviewed the very large mass of experimental data now available on the subject. The results of his labours are embodied, as we have said, in the present Supplement to the Thirtieth Annual Report of the Local Government Board.

The following "Summary and Conclusions" are so important that we make no apology for reprinting them at length from Dr. Houston's Report.

Our readers will observe that two expressions are used which, perhaps, need explanation—"erosive ability" and "plumbo-solvency." By the former is to be understood a quality of acting upon lead possessed by some waters. Erosion of lead may be roughly compared to the rusting of iron. When lead is exposed to the action of water possessing the property in question, its surface disintegrates, and scales of lead, in relatively insoluble form, are separated, leaving a new surface ready for further erosion. This is shown chiefly in the case of bright lead, and bears no relation to the acidity of the water. "Plumbo-solvency," on the contrary, is the ability of a water to dissolve lead. The factor essential to the possession by a water of plumbo-solvent properties is acidity, and the degree of acidity and of corresponding plumbo-solvent potency is determined by the presence of peat on the gathering area, and by the conditions under which the drainage of the peat gains access to the water supply.

And now for Dr. Houston's summary and conclusions. He finds that :—

"1. The history of epidemics of lead poisoning due to water supply, at all events in the North of England, clearly shows that

the towns which have suffered in the past derived their water supply from moorland sources. In some cases we know that the water was acid, and in others there was every reason to infer that the water was in a similar condition, since the physical circumstances of the gathering ground were the same. For example : Sheffield has a 'high' and a 'low level' supply ; lead poisoning occurred chiefly, if not entirely, amongst the consumers of the 'high-level' supply. This water was proved to be acid, whereas the 'low-level' supply was found to be neutral. The high-level water was treated with lime which neutralised the acidity, and lead poisoning was no longer observed. Both supplies were derived from upland gathering grounds, but the 'high-level' supply was rich in acid peaty water, and contained very little spring water, whereas the 'low-level' supply contained a much larger proportion of neutral spring water and very little peaty water. Similarly Mossley suffered from lead poisoning in 1893. Dr. Copeman in his report to the Board showed conclusively that lead poisoning was prevalent only in those districts supplied with acid water from Lower Swineshaw reservoir, and that when the neutral water from Brushes reservoir and from the Greenfield Valley (springs) was supplied to the inhabitants there was no lead poisoning. Mossley was kept under observation for a considerable period. Not only was the water in Lower Swineshaw reservoir found to be acid, but the water as delivered to Mossley was also found to be habitually acid and possessed of plumbo-solvent ability. In December, 1894, 'treatment' of the water was commenced, lime being added to the water in Lower Swineshaw reservoir. Gradually the effect of the 'treatment' showed itself in Mossley, and eventually the water became practically neutral and free from plumbo-solvency. Coincident with this change in the quality of the water lead poisoning was no longer complained of. On September 25, 1895, a visit was paid to Mossley, and the water in Lower Swineshaw reservoir tested. It was found to be practically neutral and free from plumbo-solvent ability.

" 2. Moorland gathering grounds are usually rich in peat. The amount of peat varies greatly on different gathering grounds, both superficially and in depth.

" 3. Moist peat has been found to be invariably acid in reaction.

" 4. The water draining from peat is always acid. The amount of acidity depends chiefly on the amount of peat and the length of time the water has been in contact with it.

" 5. Acid peaty water dissolves lead.

" 6. The degree of plumbo-solvency of a water is chiefly governed by the amount of its acidity.

" 7. Moorland spring water is neutral and often possessed of slight acid-neutralising ability. In virtue of this property, spring water is commonly capable of neutralising a certain proportion of acid peaty water.

" 8. Neutral water does not dissolve lead to any appreciable extent.

" 9. Moorland waters, as received into storage or service reservoirs, usually contain a mixture in variable amount of acid peaty water and neutral spring water. The reaction of the 'mixed' water at any given time is determined by the relative amount of peaty water, and the degree of its acidity on the one hand, and by the relative amount of spring water and the degree of its acid neutralising ability on the other.

" 10. Rain water is usually neutral, but on some gathering grounds it is slightly acid. Such acidity, however, is quite insufficient to account for the acidity of moorland waters.

" 11. Water draining from rock rich in iron pyrites may be acid and act on lead. This, however, is seemingly not a common cause of acidity of moorland waters.

" 12. During dry weather, and especially at the end of a period of dry weather, the water in moorland streams is almost invariably neutral and free from plumbo-solvent ability.

" 13. During dry weather the water in moorland streams consists chiefly of spring water; during wet weather the water is chiefly surface water draining from peaty soil.

" 14. During storms the water in moorland streams is usually very acid, and acts strongly on lead. Especially is this the case when the wet weather succeeds a period of drought, as then the streams contain the 'first washings' of the peat.

" 15. On most moorland gathering grounds there are areas (particularly on the higher and flatter portions of the gathering grounds) where the rain stagnates in peaty, boggy, and marshy places. Such water has always been found to be acid in reaction.

" 16. On many gathering grounds a layer of impervious marl underlies the beds of peat. This prevents the escape of rain in a downward direction, and so the water is 'held' in the peat or escapes only by slow lateral percolation. Thus, the peat is always moist, and each successive rainfall washes out of the peat substances formed during the more or less prolonged contact

of the water with the peat, rendering the water considerably acid.

"17. The 'dry weather flow' on most moorland gathering grounds is very small, and is usually quite inadequate to meet the requirements of the town or towns supplied with water.

"18. In such cases, during a period of drought, the water in the compounding reservoirs sinks rapidly to a very low level.

"19. When heavy rain comes after drought millions of gallons of acid peaty water are frequently allowed to enter the waterworks. Indeed, the storage reservoirs are constructed for this very purpose—namely, to store for future consumption a vast bulk of 'storm' water, the ordinary flow of the streams being far too small to keep the reservoirs at their proper level.

"20. Thus, it not unfrequently happens that, during dry weather, a reservoir water is strongly acid, while all, or nearly all, the 'inlet' streams contain neutral water. In storm time, however, these streams contain not only acid water, but the water in them is usually more acid than the reservoir water itself.

"21. Although large quantities of peat are frequently washed into reservoirs, and although the bed of some reservoirs is largely composed of peat, the acidity of the water in moorland reservoirs is not to be traced, or only in small measure, to this circumstance, but to the ingress of large quantities of acid water during storms. No doubt, however, the peat mechanically washed into the reservoirs, and the peat in the bed of the reservoirs assists in 'keeping' the water acid. Laboratory experiments seem to prove that an acid peaty water stored out of contact with peat does not increase in acidity, but tends to lose some of its original acidity.

"22. While the cause of plumbo-solvency is to be traced to the presence of acid in the water, and the source of the acid to contact with peat, the antecedent cause of the acidity of moorland waters seems to be associated, at all events in part, with the presence of acid-producing bacteria in the peat itself.

"23. Certain microbes isolated from peat possess the power of rendering by their growth a sterile neutral decoction *made solely from peat*, both acid and possessed of plumbo-solvency.

"24. Acid peaty waters have the power of dissolving not only *bright* lead, but old coated lead, and the action is a very rapid one.

"25. Neutral waters do not dissolve lead to any appreciable extent, but they sometimes act on *bright* lead by eating away

the surface of the metal in the presence of dissolved oxygen ('erosion').

"26. The power of 'eroding' lead is an inherent property of water containing dissolved oxygen. All waters do not 'erode' lead because most of them contain substances which coat the bright surface of the metal, and so prevent any further action taking place.

"27. Some moorland waters are not only acid and possessed of plumbo-solvent ability, but 'erode' lead as well. But in the absence of associated acidity and plumbo-solvency, ability to erode lead appears to be of secondary importance. Erosive ability, *per se*, is not to be regarded as an intrinsically dangerous quality of a water unless under special conditions and in the presence of bright lead.

"28. Risk of a water acquiring plumbo-solvent ability may be guarded against by methods designed to exclude from the supply contributory waters, which experience has shown to be conspicuously and uniformly acid, and also by mechanical contrivances to prevent access to the supply of the 'first washings' of peaty soil after periods of drought.

"29. Plumbo-solvent ability, which has been acquired by a water about to be sent to consumption, may be removed by suitable arrangements for neutralisation. It is of advantage to combine such arrangements for neutralisation with sand filtration.

"30. I would urge, as a practical outcome of this inquiry, that the circumstances of every supply of moorland origin should be considered with reference to the factors of plumbo-solvency which exist upon it; and in this Report I have endeavoured to make clear the nature of these factors and their relative importance. It is advisable in the case of existing works to test, not only in the reservoirs and main streams, but also in the tributary streams and subsidiary 'feeders' during different seasons of the year, and under ordinary and extraordinary conditions of the rainfall, in order to arrive at a satisfactory conclusion as to the liability of the supply in general, and of its constituent waters, to acquire plumbo-solvent ability. Study of this sort affords the most satisfactory means of determining how best to apply the remedy, or combination of remedies, needed in the particular instance. In the case of proposed new waterworks, this inquiry indicates the necessity of a careful survey of the physical characters of the gathering grounds, as well as of ascertaining the proportion of spring water to surface water at different times of the year and

under different conditions of rainfall, and of testing the quality of the spring water and its power of neutralising acid, and the quality of the surface water, especially during wet weather and sudden storms following a period of drought."

A Manual of Family Medicine and Hygiene for India. By SIR WILLIAM MOORE, K.C.I.E.: Honorary Physician to H.M. the Queen: formerly Surgeon-General with the Government of Bombay. Published under the authority of the Government of India. Seventh Edition. Revised by MAJOR J. H. TULL WALSH, I.M.S., F.L.S. London: J. & A. Churchill. 1903. 8vo. Pp. xii and 680.

THIS volume represents the phenomenal success of an essay for the composition of which a Government (competition) reward was conferred upon the author in 1873; and, accordingly, the seventh edition is separated from the first by an interval of less than quite thirty years. Throughout none of the successive stages of its very popular career has this volume ever been proposed to the public by its author as intended for educational, or even quite technical, purposes. His own summary of the functions which he intended it to fulfil is indeed the most concise and justly appreciative account of the volume that can well be offered: "It is not intended to take the place of medical assistance and advice; but it is offered as a substitute when such aid is not obtainable, and as the method by which improper treatment may be avoided."

Although the arrangement of the contents is mainly as in the preceding editions, some changes have been made in the matter; and a good deal in the general "get-up" of the volume itself. The size of the page has been increased, and the thickness of the book thereby diminished; so that the appearance is more graceful, and the manipulation more enjoyable to the reader. The *Addendum*—with its *recipes* for the diet of the invalid—has been placed in the body of the book, at the end of Chapter VII. A small amount of matter has been omitted, in accordance with recent advances in our knowledge of tropical pathology. The editor has also introduced changes in phraseology, and uses new scientific terms, for the same reason. In this way, a large number of additions

and alterations—major and minor—have been brought into the text in the present issue; for the purpose of bringing the volume up-to-date in the various departments of causation, symptoms, and treatment. And in its present form we can say with confidence that the volume thoroughly deserves a continuation of the popular favour with which its predecessors have been treated.

“First Aid” to the Injured and Sick. An Advanced Ambulance Handbook. By F. J. WARWICK, B.A., M.B. Cantab., M.R.C.S., L.S.A.; Associate of King’s College, London; Captain, Royal Army Medical Corps (Vols), London Companies; Late Lecturer on Ambulance to the School Board for London; Honorary Life Member, Late Lecturer and Examiner of the St. John Ambulance Association, and Honorary Divisional Surgeon, St. John Ambulance Brigade. And A. C. TUNSTALL, M.D., F.R.C.S. Ed.; Captain Commanding the Fourth or City of London Volunteer Infantry Brigade, Bearer Company; Honorary Associate of the Order of St. John of Jerusalem in England; Honorary Life Member, Lecturer and Examiner of the St. John Ambulance Association; Honorary Divisional Surgeon of the St. John Ambulance Brigade; Surgeon to the French Hospital and to the Children’s Home Hospital. Third and Revised Edition. 12th Thousand. Bristol: John Wright & Co. London: Simpkin, Marshall, Hamilton, Kent & Co., Ltd. 1903.

THE rapid success of this extremely instructive little volume is the most conclusive proof that its publication was at once felt to supply a distinct want in what may be called popular professional literature. The second edition was called for with such eagerness that no time was available for even small alterations in printing. In this third issue the authors have carefully revised the text, and have availed themselves of some of the suggestions made by friendly critics and advisers since the first publication. Many of the illustrations contained in the former editions have been considerably improved in the present, and a large number of others have been added.

In its present form, this extremely handy and tastefully-

bound little volume is a most excellent guide-book to its subject. We feel sure that its popularity will be fully maintained, and we need wish it nothing better.

Diseases of the Organs of Respiration: a Treatise on the Etiology, Pathology, Symptoms, Diagnosis, Prognosis and Treatment of Diseases of the Lungs and Air Passages. By SAMUEL WEST, M.D., F.R.C.P.; Assistant Physician and Lecturer on the Principles and Practice of Medicine at St. Bartholomew's Hospital; Senior Physician, Royal Free Hospital; &c. In Two Volumes. With numerous Diagrams and Illustrations. London: C. Griffin & Co. 1902. Pp. 398 and 514.

WE congratulate Dr. West on the publication of this important and valuable work. For the amount of research of which it gives evidence, and for the wealth of information which it contains, we believe it to be unequalled by any of the books on the subject produced by British physicians for many years past. Dr. West has had much experience as physician to two general hospitals and to a special chest hospital, and much of the book is based on his own observations. On some subjects his views differ from those usually accepted; and, while stating the views of others fully, yet he does not hesitate to show clearly what he has himself come to believe. One feature of the work which has impressed us is the amount of statistical information as to the frequency of diseases, symptoms, &c., which appears on almost every page.

The book is a very valuable one, and can be warmly commended to all physicians.

Reports of the Society for the Study of Disease in Children. Vol. II. Session 1901-1902. Edited by GEORGE CARPENTER, M.D. London: J. & A. Churchill.

THIS second volume of these interesting Transactions contains many reports of value. The Society was founded two years ago, and has done some admirable work. The cases are, on the whole, better reported than last year. They are eminently practical, and mostly consist of short demonstrations of cases exhibited,

which are most instructive. Amongst the most interesting are "Arsenical Neuritis," "Double Facial Palsy," "Tubercular Meningitis," "Adenoids," "Dilatation of Colon," "Scurvy," and "Heart Disease in Children." We are surprised, however, to find that many of the highest British authorities on Diseases of Children, notably many members of the staffs of London Hospitals, have not been enrolled as members. Being a London Society, this is remarkable. The Society is deserving of support, and these Transactions are distinctly interesting.

A System of Physiologic Therapeutics: a Practical Exposition of the Methods, other than Drug-giving, useful in the Prevention of Disease and in the Treatment of the Sick. Edited by SOLOMON SOLIS COHEN, A.M., M.D.; Senior Assistant Professor of Clinical Medicine in Jefferson Medical College; Physician to the Jefferson Medical College Hospital, and to the Philadelphia, Jewish, and Rush Hospitals; one time Professor of Medicine and Therapeutics in the Philadelphia Polyclinic, &c. Volume V. Prophylaxis—Personal Hygiene—Civic Hygiene—Care of the Sick. By JOSEPH M'FARLAND, M.D., Professor of Pathology, Medico-Chirurgical College, Philadelphia; HENRY LEFFMAN, M.D., Professor of Chemistry in the Woman's Medical College, Philadelphia; ALBERT ABRAMS, A.M., M.D. (University of Heidelberg), formerly Professor of Pathology, Cooper Medical College, San Francisco; and W. WAYNE BABCOCK, M.D., Lecturer on Pathology and Bacteriology, Medico-Chirurgical College, Philadelphia. Illustrated. London: Rebman, Ltd. 8vo. Pp. 539.

As we are told in the preface, this volume is meant to "contain an epitome of what is essentially the Natural History of Medicine; including the important facts, thus far learned, regarding the origin, dissemination, and prevention of disease." The scheme is a lofty as well as a comprehensive one; and we must congratulate the various contributors on the ability and judgment, as well as the exceptional scientific and literary attainments, which they have brought to bear on the completion of their several portions of this mighty undertaking. We must also take the opportunity of congratulating the

editor on the skill which he has displayed in uniting the various sections into one great and harmoniously constructed monument of scientific architecture. Every one of the sections is dealt with in a thoroughly philosophical, and judiciously critical, spirit; and the most painstaking endeavour must have throughout been expended in the selection and sifting of every important item of information from the vast mass of material which had to be utilised in each individual case. And a corresponding degree of exceptionally marked constructive skill has in each instance been brought to bear on the concluding efforts of uniting and welding all the selected materials into a single homogeneous and harmonious scientific structure. The fullest up-to-date information and advice on the manifold questions which are involved in each subject dealt with are here made available, and presented in the clearest light, and by the most instructive methods. The complicated problems of economics, of engineering, of manufacturing, of architecture, of pædagogics, of commercial intercourse, of taxation, of municipal government, which are continuously arising in connection with the causation and prevention of disease, are fully discussed; also, the collateral considerations involved in the subjects of epidemiology, of parasitology, and of entomology. The all-important subject—for the patient and his other friends—of the care of the sick room is dealt with in a way which we cannot recollect having found equalled in any other treatise in the English—or, indeed, in any other—language. We are told that “the editor takes a special pleasure in this volume.” We could have easily guessed that without being told. His share in the work has evidently been a labour of love; and we will add that the results obtained give him reasonable grounds for the development of a degree of pride corresponding to his pleasure. As the volume now lies before us, we look upon it as a priceless mine of information, embodying in the most lucid and attractive form every well-established item of information on the general subjects of the nature, causation, distribution, and prevention of disease.

After having said so much, we do not think it necessary to enter into detailed criticism; we will merely close this cursory notice by recommending every one of our readers to procure the volume for himself, and then let him read, mark, learn, and inwardly digest the contents.

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## PART III.

### SPECIAL REPORTS.

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#### RHINOLOGY AND LARYNGOLOGY.

By S. HORACE LAW, M.D. Univ. Dubl., F.R.C.S.I.; Throat Surgeon to the Adelaide Hospital, and Surgeon to the Dublin Throat and Ear Hospital.

##### "CHORDITIS CANTORUM."

THE *Laryngoscope* for November, 1902, contains a very interesting article by F. E. Miller, M.D., of New York, which places the subject of singers' nodes in quite a new light. He commences his article with a quotation from a previous paper on "Observations of Voice and Voice Culture," where he said: "The action of the pharyngeal and nasal cavities, or hollow spaces, is prior and anterior to the action of the vocal bands, for the rest of the voice, showing that we need for tone and overtone production, quality, pitch and amplification—something more than mere action of the vocal cords in order to produce tone properly." He then mentioned the case of a singer who was not able to retain pitch, and had a break at F sharp, and whose voice after attempts at phonation broke, forming a node between the anterior third and thyroid end of the vocal cartilage, which proved to him that a blow struck on the side of the larynx, and injuring one of the exterior or extrinsic muscles of attachment, is capable of producing a certain and specific injury at a point on the cord within. This fact completely overrules the contention of the authorities who maintain that a node cannot be formed at a point further up in the cord than the anterior third.

He then directed attention to the three hollow spaces—nasal, oral and laryngeal—which, he said, had much to do with the modification and modulation of the voice; and to illustrate this he had prepared a glass vessel with three spaces nearly corresponding to those spaces mentioned above.

He then compared the vocal mechanism to a violin, and showed that these hollow spaces are to the vocal bands what

the violin is to the strings, adding that the vibrations of the air, not the cords, are what is commonly called the "tone." Anatomically he showed that the muscles are so arranged that they are attached to the base of the skull and thence on downwards to the sternum, and thus are capable of steadying and lifting or moving the various parts of the vocal apparatus. Also he showed that the cricoid cartilage lies closely applied to the 5th cervical vertebra, and thus bone conduction is secured for the better diffusion of the sounds produced. The tongue also is alone sufficient to completely destroy tone by derangement of its movements, though when well adjusted it gives what is termed the silvery quality to the voice. He then proceeded to show that many of the movements used in vocalisation are capable of voluntary control, and that thus mistakes in use may be corrected. The key also to efficient results seems to lie in the regulation of the hollow spaces by the control of their boundaries, so that with the establishment of correct relationship of parts, and the use of proper breath supply, the need for voluntary control ceases. He also asserts that the thyroid cartilage moves on the cricoid, and not *vice versa* as, is often maintained.

After a long and interesting anatomical discussion, he turns to the treatment and deprecates operative interference, as when only inflammatory tissue is present this will be absorbed if the cause of the irritation is removed, and this he brings about by exercises and proper and vigorous massage to the strained parts, which is easily carried out, if his theory that the cause of these singers' nodes is to be found in the disturbance of the function of the extrinsic muscles be true. He also brought forward cases to prove that cure may be expected with this line of treatment. For a proper appreciation of the article it should be read in the original.

#### EXFOLIATION OF THE ADULT LABYRINTH.

In the "Transactions of the American Otological Society," Vol. VIII., Part I., 1902, Dr. B. A. Randall relates a case of "Trauma in Relation to Exfoliation of the Adult Labyrinth." The case was briefly as follows:—A big, strong man of fifty-five was injured in a railway accident, becoming unconscious, and was found to be suffering from an abrasion in the temporal



region, which was exquisitely tender. He afterwards complained of dizziness, but no deafness was reported. After some months his mastoid was opened, and again a second time later on, but both times only superficially.

Finally a large white sequestrum was removed, and subsequently some more dead bone; the sequestrum consisted of the greater part of the vestibule and semi-circular canals. He says: "Examination of the sequestrum, however, showed almost no sign of carious surfaces, and while stony hard, it was rounded like a pebble from the brook by the long-continued action of granulation tissue. This made plausible the view that a fissure of the petrous portion of the temporal bone anterior to the auditory apparatus had furnished an entrance point for the deeper penetration of the suppurative process, and had facilitated the separation of the labyrinthine sequestrum." He then gives several other cases and quotes Alt in Blau's "Encyclopædia of Otology," where he says: "The necrosis affects most frequently the inner structure of the cochlea with involvement of the whole or a major part of the first turn. There is special disposition to the affection in the first decade of life. The duration of the causative otorrhœa is from many months to twenty years. As symptoms of labyrinthine necrosis or exfoliation we may consider severe, long-standing pain in ear and head robbing the patient of sleep for years or months, profuse malodorous otorrhœa, polypoid growths quickly recurring after removal, facial palsy (in 80 %), deafness, and frequent—but by no means constant—vertigo, disturbances of equilibrium, vomiting and subjective noises." He also gives a very complete list of all the published cases.

#### THE RECURRENCE OF HYPERTROPHY IN ADENOID VEGETATIONS.

In the 12th volume, 1902, of the *Archiv. für Laryngologie*, Dr. Max Gorke has written an article on the above subject, in which he says that the attention of practitioners must be directed to an occurrence which throws doubt on the success of the operative removal of adenoids—namely, their tendency to recur in a certain proportion of the cases. He remarks that the statistics bearing on this subject vary very much, but that all agree that the condition never returns with the

same severity as previously. He considers that the causes of this recurrence are partly local and partly general or constitutional, and lays stress on the fact that such things as lympho-sarcoma, tuberculosis, and pseudo-leukæmia are at any rate possibilities. He also says that this condition may arise in otherwise healthy children, and that it cannot always be laid at the door of the operator, who may be said not to have done a complete removal, as recurrence has been noticed in some cases where the removal took place under the control of the eye by means of a mirror. An interesting point is also mentioned—namely, that the histological appearances of a piece of a recurrent adenoid tissue show a completely different structure, as the layers are no longer regular, but are mixed up and cannot be divided one from the other.

#### PACHYDERMIA AND CARCINOMA LARYNGIS.

Professor B. Fränkel, of Berlin, contributes a very instructive article to the *Archiv. für Laryngologie*, Band 13, 1902, in which he describes a case of a patient of his who first came to him with what was considered to be a simple pachydermia of the larynx. This was in March, 1897. He was again seen in July of the same year and a considerable alteration was noticed, so a piece was removed and showed a condition closely simulating carcinoma; it was decided to remove the disease, and it was done endo-laryngeally. Several more operations were performed and fissure of the larynx became necessary in order to remove all the disease. The last operative procedure was undertaken on March 13th, 1898, and then only granulation tissue was found. He was seen in 1902 and found to be perfectly well.

The vocal cord removed was cut in series, so that the transition from pachydermia to what was true cancer was well seen, and the drawings accompanying the article show this very perfectly. One can follow the outline of the basement membrane through the earlier sections and see the epithelium getting thicker and thicker, till finally one loses the dividing line, and the epithelium is found amongst the connective tissue. The interest of this case lies principally in the fact that it commenced as a pachydermia (which does not necessarily go on to carcinoma), and was seen during that stage,

before it was a definite tumour, and was watched in its development; also in the fact that no recurrence took place during the subsequent four and a half years—that is, up to date; and finally in the very complete microscopic examination which produced such a wonderful series of sections.

A second case of a similar nature is also mentioned, and in it up to the time of the patient's death in 1902, from intestinal carcinoma, no recurrence in the larynx had taken place.

#### THE PRESENT POSITION OF THE OZÆNA QUESTION.

In the 13th volume, 1902, of the *Archiv. für Laryngologie*, Dr. L. Grünwald has written a very important article, condensing and placing in chronological order the various theories advanced with regard to this little understood disease. He commences by saying that hardly any two authorities agree as to the causation, or, indeed, as to the proper clinical division, even leaving out the question of the pathology, of this affection. First came Fränkel's description of what he laid down to be "genuine ozæna," then Gottstein described it as "formation of foetid crusts on both sides in a wide nose." At that time it was considered to be a secretion from the whole surface of the nasal mucous membrane, or at any rate a large portion of it. Then came reaction in favour of the theory that an accessory sinus was at the bottom of the mischief, and several *post-mortems* were cited as proving this contention. The next change was due to histological research, and it was stated that there was always a fatty degeneration present, and another authority stated that the glands were atrophied. Then came the difficulty of getting all these various observations into some order; obviously there could hardly be an increased secretion with diminution of glandular tissue, so this helped on the theory of accessory sinus inflammation as the fountain head of the trouble. On the other hand, there are many cases where no one could say that any accessory sinus had anything to do with it, as at *post-mortems* nothing was found in them, so that the next step was to say that there were different forms. Another authority (Hajek) found no difficulty in reconciling these apparent opposites by saying that in the later cases the accessory sinus had got well and had left behind an altered and degenerate mucous membrane, which con-

tinued to secrete matter and to form crusts. The next advance was in bacteriology, when a "bacillus ozaena" was described by Lowenberg, and other forms by Abel, &c. Other causes given at various times were gonorrhœal infection contracted at birth, congenital syphilis, tuberculosis, purulent rhinitis in early childhood, and the like. He then discusses the three cardinal symptoms—formation of crusts, smell and atrophy, the latter requiring to be divided into atrophy in the whole thickness and that occurring in one or more layers. He winds up his article with the following, which is a translation, but makes no attempt to say what his views on this complex subject are, further than to incline to the theory that the disease of one or more accessory sinuses is probably the correct solution:—

"Thus we see that we are almost in a position to make a fairly complete picture of the genesis of the train of symptoms belonging to the so-called ozaena, although it is not clear in every particular.

"A number of the local suppurative diseases (accessory sinuses, rhinitis and adenoids) pursue a course under the clinical picture of foetid crust-formation in an atrophic nose. The secretion is often fluid, generally without smell, though often found to be foetid in the fresh condition, dries as a result of the mechanical conditions occasioned by the abnormal width of the nasal cavities, amongst which conditions the adhesiveness due to the *Bacillus mucosus* of Abel is shown to be one of the most important.

"The atrophy, in so far as it was not primarily present, occurs as a result of the pressure and infectious influence of the large crusts.

"The smell is brought about by the saprophytic decay in moist surroundings, due to the abnormal adhesiveness of the closely applied masses of secretion. The reason why the secretion, primarily of a serous character, has more inclination to become adherent and foetid still requires elucidation.

"It is, however, certain that the general condition of body weakness due to hereditary taint, more especially a tuberculous one, gives considerable aid in the setting up of the original suppuration and the secondary infective processes; while, on the other hand, the disease itself can lead to general cachexia, anæmia, scrofula, &c."

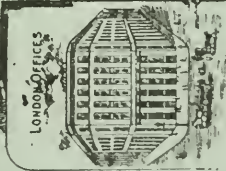
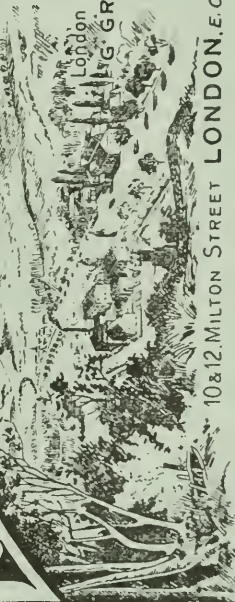


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In answer to an existing demand expressed by correspondence in *The Times* and other leading papers for a **Guaranteed** Brand of French Clarets, Sauternes, and Burgundies, Messrs. ADET SEWARD & CO. (established 1852), proprietors of the **Vergniaud Cellars** in Bordeaux, have placed on the British market the following wines, under their guaranteed "**VD**" Brand. Each bottle bears in addition to the Registered Brand, "**VD**," a reference mark of growth and quality.

In a recent report on these wines the "*Lancet*" says:—

"We find them all in good condition, and characterised by a practical absence of acidity, and a minimum of sugar and alcohol. We believe them to be pure natural wines, and it is satisfactory to note that wines of such a class can be offered at moderate prices." (See "*Lancet*" Analytical Report, Sept. 6, 1902.)

### VD CLARETS.

|        |                                 |      |           |
|--------|---------------------------------|------|-----------|
| V D 5. | Margaux .. ..                   | 18/- |           |
| V D 4. | St. Julien-Adet .. ..           | 23/- |           |
| V D 3. | Larose .. ..                    | 28/- | per doz.  |
| V D 2. | Château Talbot .. ..            | 36/- | bottles   |
| V D 1. | Château Montrose .. ..          | 44/- | net cash. |
| V D 0. | Château Mouton-Rothschild .. .. | 60/- |           |

### VD SAUTERNES.

|        |                      |      |           |
|--------|----------------------|------|-----------|
| V D 4. | Barsac .. ..         | 23/- | per doz.  |
| V D 2. | Haut Sauternes .. .. | 36/- | bottles   |
| V D 0. | Château Yquem .. ..  | 60/- | net cash. |

### VD BURGUNDIES.

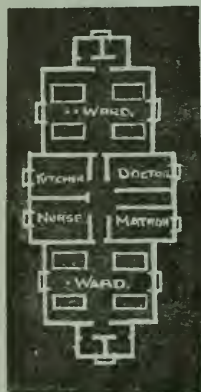
|                           |      |           |
|---------------------------|------|-----------|
| V D Beaune .. ..          | 23/- | per doz.  |
| V D Pommard .. ..         | 28/- | bottles   |
| V D Volnay .. ..          | 36/- | net cash. |
| V D Chablis (White) .. .. | 26/- |           |

Half-bottles of each kind, 3/- extra per 24.

When ordering, the public are earnestly requested to ask for the "**VD**" Brand.

Agents for Home Trade and Export—

MACMINN RICHARDSON & CO., 11 Hart Street, Mark Lane, E.C.



## PART IV.

### MEDICAL MISCELLANY.

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*Reports, Transactions, and Scientific Intelligence.*

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#### ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—LOMBE ATTHILL, M.D., F.R.C.P.I.

General Secretary—JOHN B. STORY, M.B., F.R.C.S.I.

#### SECTION OF MEDICINE.

President—A. V. MACAN, M.B., Pres. R.C.P.I.

Sectional Secretary—R. TRAVERS SMITH, M.D.

*Friday, March 13, 1903.*

#### *Splenic Anæmia.*

AFTER giving a short review of the literature of the subject DR. GEORGE PEACOCKE related the history of a man, aged forty-five, who was admitted into the Adelaide Hospital under his care on June 8th, 1902. The general appearance suggested lymphadenoma rather than any other cause of splenic enlargement. The case was considered as possibly a splenic form of Hodgkin's disease.

[Dr. Peacocke's paper will be found at page 274.]

#### *Severe Measles in an Adult—Second Attack.*

DR. BURGESS reported a case. The symptoms were of the scarlatina type, although there was no doubt as to the diagnosis. The case was remarkable for (1) the prolonged fever chart; (2) exhibiting the sudden hyperpyrexia (106° F.); (3) the suppression of urine occurring thrice; (4) the continuous restlessness and insomnia over which no drugs exerted any influence. The patient made a perfect recovery.

[Dr. Burgess's paper will be found at page 281.]

DR. H. C. DRURY said that he agreed with the diagnosis of

measles as against scarlatina from the fact that there were well-marked symptoms, such as are met with in measles previous to the appearance of the rash on the fourth day. The unusual symptom of vomiting was probably a family peculiarity, seeing that it occurred in the patient's two children. The dark colour of the rash was usually a bad symptom, as in this case, but he lately had a child under his care who went through an ordinary uncomplicated attack of measles, but with a petechial rash all over the body. A sister of the patient was admitted under the care of a colleague with a similar attack, and also a petechial rash. This probably illustrated another form of family peculiarity.

### *Hallucinations.*

DR. CONOLLY NORMAN read a paper. He mentioned a case of unilateral hallucination of hearing occurring in a man deaf of the same ear, and described in much detail a number of cases of psychomotor hallucination. He referred to some of the rarer forms of hallucination and briefly glanced at the theories of hallucination propounded by Tamburini and Tanzi.

The Section then adjourned.

## SECTION OF OBSTETRICS.

President—W. J. SMYLY, M.D.

Sectional Secretary—T. HENRY WILSON, M.D.

*Friday, March 20, 1903.*

THE PRESIDENT in the Chair.

DR. TWEEDY showed an ovarian cyst, and also a parovarian cyst removed from the same patient.

DR. PUREFOY showed a pyosalpinx (salpingitis isthmica nodosa).

DR. ALFRED SMITH exhibited a Bossi dilator and described its action and use.

DR. PUREFOY and DR. CARTON gave details of cases in which they had used the instrument, and DRS. TWEEDY, DOYLE, and the PRESIDENT also spoke.

THE SECRETARY read for DR. W. P. COCKLE a paper on a case of "Eclampsia," with *post-mortem* delivery by forceps.

The Section then adjourned.



## CORK MEDICAL AND SURGICAL SOCIETY.

*Wednesday, March 25, 1903.*

P. T. O'SULLIVAN, M.D., President, in the Chair.

### *Gangrenous Appendicitis.*

DR. HORACE R. TOWNSEND read notes of an operation for gangrenous appendicitis in a man, aged twenty-two, and showed the patient and the diseased organ. The man had been attacked by sudden acute pain in the right iliac region, which continued for seven days before his admission to the South Infirmary. On examination a swelling could be detected in the right iliac fossa. This was dull on percussion, immovable, and very tender. The temperature was  $103.2^{\circ}$ . Two days afterwards an operation was performed. On opening the abdomen the cæcum was found inflamed and distended, and on searching for the appendix some adhesions between the cæcum and the adjacent intestine gave way, and about a pint and a half of pus welled up through the incision. With this pus the appendix was washed away, as well as a faecal concretion about the size and shape of a tooth. The appendix was found to be in a gangrenous condition. By sewing together the peritoneal surfaces of the cæcum and ileum the cavity containing the pus, which was in the walls of the cæcum, was completely cut off from the rest of the abdominal cavity. Two drainage wounds were made, and though these are still secreting slightly the patient is in excellent health.

### *Septicæmia.*

DR. P. J. CREMEN read notes of a case of septicæmia in a girl, aged nineteen. For a long time past she had suffered from dysmenorrhœa, accompanied by severe vomiting. The uterus was found to be in a condition of retroflexion, and one Fallopian tube was enlarged. The uterus was replaced with the sound, and a Hodge's pessary was inserted. That night the patient got a rigor, and next morning her temperature was  $103.2^{\circ}$ , and continued high for two days. The menses then appeared, and the temperature fell to  $102^{\circ}$  for five days, but rose again to  $103^{\circ}$ , and the patient now suffered from abdominal pain and vomiting; her respirations were 35, and her pulse 120. *Antistreptococcus*

serum was then injected, and was continued in doses of 10 c.c. every four hours as long as the temperature remained above 102°. In a few days the temperature fell to 99°, but the lungs became affected with broncho-pneumonia, evidently of a septic type, and at this period the patient was in an extremely low condition. It having been found that a rectal injection of one pint of normal saline solution, to which 15 grains of quinine were added, brought about a material improvement, this was repeated on several occasions, and always with good results. A few hypodermic injections of strychnin were given at this stage, but after three doses of  $\frac{1}{30}$ th grain at four hour intervals, symptoms of strychnin poisoning developed, and the drug had to be abandoned, digitalin being substituted. A number of subcutaneous abscesses appeared in the limbs later on, and had to be opened. Eventually, after all hope had been abandoned, the disease appeared to have worn itself out, and the patient made a very slow but complete recovery. In all 55 injections of serum were given.

#### *Hæmorrhagic Endometritis.*

DR. JOHN REID read notes of a case of hæmorrhagic endometritis in a woman aged thirty-eight. The bleeding was profuse, and continued for five weeks, resisting all the ordinary methods of treatment. A previous attack, three years ago, had been cured by curetting, but the patient would not consent to the operation on this occasion. Among other drugs which failed to give relief was adrenalin, administered by the mouth, but on packing the uterus with iodoform gauze, steeped in a solution of adrenalin chloride (1 in 1000), the hæmorrhage immediately ceased, and the patient did not lose another drop of blood.

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#### REPORT OF THE ROYAL COMMISSION ON UNIVERSITY EDUCATION IN IRELAND.

IN reply to numerous enquiries as to the possible outcome of the Commission's Report, the Secretaries of the Royal University of Ireland are requested to state that nothing is yet known of the intention of the Government in this matter, and that, even if any changes are to be introduced, due regard will be had to the cases of those who have entered on their University career, and a considerable time will be allowed them within which to complete their courses under the ordinary regulations.

# SANITARY AND METEOROLOGICAL NOTES.

Compiled by SIR JOHN MOORE, B.A., M.D. Univ. Dubl. ;

F.R.C.P.I. : F.R. Met. Soc. ;

Diplomate in State Medicine and Ex-Sch. Trin. Coll. Dubl.

## VITAL STATISTICS.

*For four weeks ending Saturday, March 28, 1903.*

## IRELAND.

### TWENTY-TWO TOWN DISTRICTS.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ending March 28, 1903, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 22·5 per 1,000 of their aggregate population, which, for the purposes of these returns, is estimated at 1,093,289. The deaths registered in each of the four weeks ended Saturday, March 28, and during the whole of that period, in the several districts, alphabetically arranged, corresponded to the following annual rates per 1,000 :—

| TOWNS, &c.              | Week ending |         |         |         | Average Rate for 4 weeks | TOWNS, &c.  | Week ending |         |         |         | Average Rate for 4 weeks |
|-------------------------|-------------|---------|---------|---------|--------------------------|-------------|-------------|---------|---------|---------|--------------------------|
|                         | Mar. 7      | Mar. 14 | Mar. 21 | Mar. 28 |                          |             | Mar. 7      | Mar. 14 | Mar. 21 | Mar. 28 |                          |
| 22 Town Districts       | 25·4        | 22·9    | 24·2    | 22·5    | 23·8                     | Lisburn -   | 27·3        | 13·6    | 27·3    | 13·6    | 20·5                     |
| Armagh -                | 41·2        | 20·6    | 20·6    | 20·6    | 25·7                     | Londonderry | 31·5        | 22·7    | 23·9    | 21·4    | 24·9                     |
| Ballymena               | 9·6         | 14·4    | 14·4    | 9·6     | 12·0                     | Lurgan -    | 8·9         | 8·9     | 35·4    | 26·6    | 20·0                     |
| Belfast -               | 23·3        | 22·0    | 20·8    | 20·5    | 21·7                     | Newry -     | 37·8        | 29·4    | 50·4    | 37·8    | 38·8                     |
| Clonmel -               | 30·8        | 15·4    | 0·0     | 30·8    | 19·3                     | Newtownards | 22·9        | 17·2    | 11·4    | 34·3    | 21·5                     |
| Cork -                  | 27·4        | 19·9    | 20·5    | 12·3    | 20·0                     | Portadown   | 31·0        | 0·0     | 41·3    | 0·0     | 18·1                     |
| Drogheda -              | 28·6        | 8·2     | 12·3    | 20·4    | 17·4                     | Queenstown  | 33·0        | 5·6     | 6·6     | 6·6     | 13·2                     |
| Dublin -<br>(Reg. Area) | 27·8        | 26·6    | 27·7    | 29·3    | 27·9                     | Sligo -     | 28·8        | 14·4    | 28·8    | 14·4    | 21·6                     |
| Dundalk -               | 4·0         | 19·9    | 27·9    | 4·0     | 14·0                     | Tralee -    | 5·3         | 5·3     | 58·1    | 21·1    | 22·5                     |
| Galway -                | 19·4        | 35·0    | 19·4    | 19·4    | 23·3                     | Waterford   | 25·3        | 25·3    | 25·3    | 19·5    | 23·9                     |
| Kilkenny -              | 19·7        | 29·5    | 4·9     | 9·8     | 16·0                     | Wexford -   | 32·7        | 18·7    | 23·3    | 18·7    | 23·4                     |
| Limerick -              | 20·5        | 30·1    | 28·7    | 16·4    | 23·9                     |             |             |         |         |         |                          |

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases, registered in the 22 districts during the week ended Saturday, March 28, were equal to an annual rate of 1·9 per 1,000, the rates varying from 0·0 in fifteen of the districts to 29·4 in Newry, the 9 deaths from all causes registered in that district including 7 from measles. Among the 141 deaths from all causes in Belfast are 3 from measles, 3 from whooping-cough, one from diphtheria, and 2 from enteric fever.

### DUBLIN REGISTRATION AREA.

The Dublin Registration Area now consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this Area is 378,994; that of the City being 293,385, Rathmines 33,203, Pembroke 26,025, Blackrock 8,759, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, March 28, amounted to 264—137 boys and 127 girls; and the deaths to 225—117 males and 108 females.

### DEATHS.

The deaths registered represent an annual rate of mortality of 31·0 in every 1,000 of the population. Omitting the deaths (numbering 12) of persons admitted into public institutions from localities outside the Area, the rate was 29·3 per 1,000. During the twelve weeks ending with Saturday, March 28, the death-rate averaged 27·9, and was 3·0 below the mean rate for the corresponding portions of the ten years 1893–1902.

Small-pox caused one death—that of an unvaccinated child aged 5 years. Measles caused 2 deaths, scarlet fever 4, influenza one, whooping-cough 6—in the preceding 4 weeks the deaths from whooping-cough had numbered, respectively, 5, 3, 2, and 2—diphtheria 2, enteric fever 3, and *diarrhœa*, dysentery, 3 deaths.

Of the 49 deaths attributed to tuberculous disease, 2 were from tuberculous phthisis, 28 from *phthisis*, 10 from tuberculous meningitis, and 9 from other forms of the disease.

*Malignant disease* ("cancer") caused 6 deaths.

Diseases of the nervous system caused 18 deaths, of which 8, all children under 5 years of age, were from *convulsions*



There were 38 deaths from diseases of the heart and blood vessels.

Diseases of the respiratory system caused 39 deaths—a number which is equal to an annual rate of 5·4 per 1,000 of the estimated population of the Dublin Registration Area. The annual average rate for the corresponding week of the previous 10 years was 7·2 per 1,000. The 39 deaths include 22 from bronchitis, 5 from broncho-pneumonia, 8 from *pneumonia*, and one from pleurisy.

Seven deaths from accidental causes were registered, of which one was caused by burns and one by drowning.

In 11 instances the cause of death was “uncertified,” there having been no medical attendant during the last illness. These cases include the deaths of 6 children under 5 years of age (including 5 infants under one year old) and the deaths of 2 persons aged 60 years and upwards.

Fifty-seven of the persons whose deaths were registered during the week were under 5 years of age (35 being infants under one year, of whom 10 were under one month old), and 60 were aged 60 years and upwards, including 31 persons aged 70 and upwards, of whom 10 were octogenarians, and 4 (females) were stated to have been aged 90, 90, 91, and 93 years, respectively.

The Registrar-General points out that the names of causes of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

#### STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

Returns of the number of cases of infectious diseases notified under the “Infectious Diseases (Notification) Act, 1889,” as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., Medical Superintendent Officer of Health for the City of Dublin; Mr. Fawcett, Executive Sanitary Officer for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr. Heron, Executive Sanitary Officer for Blackrock Urban District; Dr. Byrne Power, Medical Superintendent Officer of Health for Kingstown Urban District; and by Dr. Whitaker, Medical Superintendent Officer of Health for the City of Belfast:—

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended March 28, 1903, and during each of the preceding three weeks.

| CITIES AND URBAN DISTRICTS           | Week ending | Small-pox | Measles | German Measles (Rubella) | Scarlet Fever | Typhus Fever | Relapsing Fever | Diphtheria | Membranous Croup | Continued Fever | Typhoid or Enteric Fever | Erysipelas | Puerperal Fever | Varicella | Other Notifiable Diseases | Total |
|--------------------------------------|-------------|-----------|---------|--------------------------|---------------|--------------|-----------------|------------|------------------|-----------------|--------------------------|------------|-----------------|-----------|---------------------------|-------|
| City of Dublin                       | Mar. 7      | 5         | 28      | 1                        | 22            | -            | -               | 8          | -                | 2               | 16                       | 18         | -               | -         | 4                         | 104   |
|                                      | Mar. 14     | 9         | 25      | 2                        | 32            | -            | -               | 11         | -                | 1               | 16                       | 11         | -               | -         | 4                         | 121   |
|                                      | Mar. 21     | 17        | 25      | -                        | 28            | -            | -               | 3          | -                | -               | 21                       | 26         | -               | 3         | 1                         | 118   |
|                                      | Mar. 28     | 14        | 14      | -                        | 51            | -            | -               | 11         | -                | 4               | 19                       | 27         | -               | 9         | -                         | 149   |
| Rathmines and Rathgar Urban District | Mar. 7      | -         | 7       | -                        | -             | -            | -               | -          | -                | -               | 4                        | -          | -               | -         | -                         | 11    |
|                                      | Mar. 14     | -         | 4       | -                        | 3             | -            | -               | 1          | -                | -               | -                        | 1          | -               | -         | -                         | 9     |
|                                      | Mar. 21     | -         | 4       | -                        | 5             | -            | -               | -          | -                | -               | 1                        | -          | -               | -         | -                         | 10    |
|                                      | Mar. 28     | 1         | 9       | -                        | 13            | -            | -               | 2          | -                | 1               | 1                        | 1          | -               | -         | -                         | 28    |
| Pembroke Urban District              | Mar. 7      | -         | -       | -                        | 6             | -            | -               | 1          | -                | -               | 1                        | -          | -               | -         | 2                         | 10    |
|                                      | Mar. 14     | -         | 1       | -                        | 7             | -            | -               | 1          | -                | -               | -                        | -          | -               | -         | 1                         | 10    |
|                                      | Mar. 21     | -         | -       | -                        | 10            | -            | -               | 1          | -                | -               | -                        | 3          | -               | -         | -                         | 14    |
|                                      | Mar. 28     | -         | -       | -                        | 4             | -            | -               | 2          | -                | -               | -                        | 3          | -               | -         | -                         | 9     |
| Blackrock Urban District             | Mar. 7      | -         | -       | -                        | 1             | -            | -               | -          | -                | -               | -                        | -          | -               | -         | -                         | 1     |
|                                      | Mar. 14     | -         | -       | -                        | -             | -            | -               | -          | -                | -               | -                        | -          | -               | -         | -                         | -     |
|                                      | Mar. 21     | 1         | -       | -                        | 1             | -            | -               | -          | -                | -               | -                        | -          | -               | -         | -                         | 2     |
|                                      | Mar. 28     | -         | -       | -                        | -             | -            | -               | -          | -                | -               | -                        | -          | -               | -         | -                         | -     |
| Kingstown Urban District             | Mar. 7      | -         | -       | -                        | -             | -            | -               | -          | -                | -               | -                        | -          | -               | -         | -                         | -     |
|                                      | Mar. 14     | -         | -       | -                        | 1             | -            | -               | -          | -                | -               | 1                        | -          | -               | -         | -                         | 2     |
|                                      | Mar. 21     | -         | -       | -                        | -             | -            | -               | -          | -                | -               | -                        | -          | -               | -         | -                         | -     |
|                                      | Mar. 28     | -         | -       | -                        | -             | -            | -               | -          | -                | -               | -                        | -          | -               | -         | -                         | -     |
| City of Belfast                      | Mar. 7      | -         | -       | -                        | 9             | -            | -               | 9          | -                | 12              | 12                       | 13         | 1               | -         | -                         | 56    |
|                                      | Mar. 14     | -         | -       | -                        | 13            | -            | -               | 8          | 1                | 5               | 11                       | 9          | -               | -         | -                         | 47    |
|                                      | Mar. 21     | -         | -       | -                        | 3             | -            | -               | 5          | 1                | 9               | 15                       | 4          | 2               | -         | -                         | 39    |
|                                      | Mar. 28     | -         | -       | -                        | 6             | 1            | -               | 6          | -                | 4               | 17                       | 9          | 1               | -         | -                         | 44    |

#### CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

During the week ending Saturday, March 28, 1903, 16 cases of small-pox were admitted to hospital, one was discharged, there was one death, and 55 patients remained under treatment at its close. Of these 9 were convalescents at Beneavin, Glasnevin, the Convalescent Home of Cork-street Fever Hospital.

One case of measles was admitted to hospital, being 3 below the admissions for the preceding week: 9 cases of this disease were discharged, there was one death, and 6 cases remained under treatment at the close of the week.

Twenty-seven cases of scarlatina were admitted to hospital, 21 cases were discharged, there were 2 deaths, and 188 cases remained under treatment at the close of the week.

The only case of typhus fever remaining in hospital at the close of the previous week was discharged.

Thirteen cases of diphtheria were admitted to hospital, 5 were discharged, there were 2 deaths, and 27 cases remained under treatment at the close of the week.

Four cases of enteric fever were admitted to hospital, 3 cases were discharged, and 46 cases remained under treatment at the close of the week.

In addition to the above-named diseases, 10 cases of pneumonia were admitted to hospital, 9 patients were discharged, and 25 cases remained under treatment at the end of the week.

### ENGLAND AND SCOTLAND.

The mortality in the week ended Saturday, March 28, in 76 large English towns, including London (in which the rate was 16·5), was equal to an average annual death-rate of 16·2 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 18·6 per 1,000, the rate for Glasgow being 19·8, and for Edinburgh 17·3.

### METEOROLOGY.

*Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of March, 1903.*

|                                                |   |   |   |                |
|------------------------------------------------|---|---|---|----------------|
| Mean Height of Barometer                       | - | - | - | 29·642 inches. |
| Maximal Height of Barometer (8th, at 9 a.m.)   | - | - | - | 30·332 „       |
| Minimal Height of Barometer (2nd, at 3 p.m.)   | - | - | - | 28·600 „       |
| Mean Dry-bulb Temperature                      | - | - | - | 44·4°.         |
| Mean Wet-bulb Temperature                      | - | - | - | 41·8°.         |
| Mean Dew-point Temperature                     | - | - | - | 38·9°.         |
| Mean Elastic Force (Tension) of Aqueous Vapour | - | - | - | ·238 inch.     |
| Mean Humidity                                  | - | - | - | 81·7 per cent. |
| Highest Temperature in Shade (on 22nd)         | - | - | - | 60·7°.         |
| Lowest Temperature in Shade (on 2nd)           | - | - | - | 34·1°.         |
| Lowest Temperature on Grass (Radiation) (10th) | - | - | - | 30·8°.         |
| Mean Amount of Cloud                           | - | - | - | 58·8 per cent. |
| Rainfall (on 26 days)                          | - | - | - | 3·623 inches.  |
| Greatest Daily Rainfall (on 12th)              | - | - | - | ·808 inch.     |
| General Directions of Wind                     | - | - | - | S.W., W., S.   |

### Remarks.

A stormy, blustering, rainy, open month was March, 1903. Yet while the mean temperature was 2° above the average it fell 1·9° below the mean for February, 1903—a marked retrogression in warmth thus taking place notwithstanding the

advancing season. The rainfall was very frequent (on 26 out of 31 days) and often heavy, so that the total amounts to the high figure of 3·623 inches. But the stormy character of the month deserves especial notice—on no fewer than 11 days did the wind reach gale-force in Dublin, and there were “high winds” on as many as 22 days. Scarcely any Easterly wind was observed—the wind kept shifting backwards and forwards through the Westerly points of the compass. The duration of bright sunshine was estimated at 110·75 hours, compared with 94 hours in 1902, 132·5 hours in 1901, and only 84 hours in 1900. The daily average of bright sunshine was 3·57 hours, compared with 3 hours in March, 1902, 4·27 hours in 1901, and only 2·7 hours in 1900.

On Wednesday, the 25th, a wave of unusual warmth for the time of year swept across France, England, Belgium, and Germany, the thermometer rising to 81° at Biarritz, 79° in Paris, 75° at Cap Grisnez (near Boulogne), 71° in Brussels, 67° in London, and 65° at Oxford.

In Dublin the arithmetical mean temperature (45·6°) was 2·0° above the average (43·6°). The mean dry-bulb readings at 9 a.m. and 9 p.m. were 44·4°. In the thirty-eight years ending with 1902, March was coldest in 1867 and 1883 (M. T. = 39·0°), and warmest in 1893 (M. T. = 48·1°). In 1902 the M. T. was 46·7°.

The mean height of the barometer was 29·642 inches, or 0·274 inch below the corrected average value for March—namely, 29·916 inches. The mercury rose to 30·332 inches at 9 a.m. of the 8th and fell to 28·600 inches at 3 p.m. of the 2nd. The observed range of atmospheric pressure was, therefore, 1·732 inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 44·4°. Using the formula, *Mean Temp.* = *Min.* + (*Max.* — *Min.* × ·485), the M. T. becomes 45·4°. The arithmetical mean of the maximal and minimal readings was 45·6°, compared with a thirty years’ (1871–1900) average of 43·6°. On the 22nd the thermometer in the screen rose to 60·7°—wind, S.S.W.; on the 2nd the temperature fell to 34·1°—wind, W.S.W. The minimum on the grass was 30·8° on the 10th—wind, W.S.W.

The rainfall was 3·623 inches, distributed over 26 days. The average rainfall for March in the thirty-five years, 1866–1900, inclusive, was 1·950 inches, and the average number of rainy days was 16·0. The rainfall, therefore, and the rainy days were much above the average. In 1867 the rainfall in March was very large—

4·972 inches on 22 days. On the other hand, the smallest March rainfall was ·288 inch on 8 days in 1893. In 1900, only ·963 inch fell on 13 days. In 1902 the rainfall was 1·752 inches on 21 days.

The atmosphere was slightly foggy in the city on the 12th only. High winds were noted on as many as 22 days, reaching the force of a gale on 11 occasions—namely, the 1st, 16th, 17th, 18th, 19th, 20th, 22nd, 23rd, 28th, 29th, and 30th. Snow or sleet occurred on the 1st, 5th, 6th, and 23rd; hail also fell on the 1st, 5th, 7th, and 28th. Temperature exceeded 50° in the screen on 18 days, compared with 23 days in 1902, only 6 days in 1901, only 5 days in 1900, 19 days in 1899, 9 in 1898, 14 in 1897, 21 in 1896, 13 in 1895, and 22 in 1894. It never fell to 32° in the screen, and on the 22nd it rose to 60·7°. The minima on the grass were 32° or less on 4 nights, compared with 5 nights in 1902, 11 nights in 1901, 14 nights in 1900, 13 in 1899, 15 in 1898, 9 in 1897, 8 in 1896, 10 in 1895, and 12 each in 1894 and 1893. The thermometer once failed to reach 45° (on the 6th).

The rainfall in Dublin during the three months ending March 31st amounted to 9·126 inches on 61 days, compared with 5·114 inches on 43 days in 1902, 5·656 inches on 46 days in 1901, 6·698 inches on 63 days in 1900, only 1·650 inches on but 32 days in 1891, and a thirty-five years' (1866–1900 inclusive) average of 6·170 inches on 50·0 days.

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At Knockdolian, Greystones, Co. Wicklow, 5·050 inches of rain fell on 25 days. The corresponding figures for March, 1900, are 1·320 inches of rain on 14 days, for 1901, 1·840 inches on 14 days, and for 1902, 1·660 inches on 17 days. The maximal fall in 24 hours was ·810 inch on the 12th. The total rainfall since January 1, 1903, equals 11·220 inches on 54 days, compared with 11·756 inches on 58 days in the first quarter of 1900, 7·260 inches on 41 days in the same period of 1901, and 6·110 inches on 34 days in that of 1902.

Dr. B. H. Steede, M.D., D.P.H., reports that at the National Hospital for Consumption, Newcastle, Co. Wicklow, the rainfall was 6·186 inches on 30 days, compared with 1·417 inches on 19 days in 1902, 1·798 inches on 14 days in 1901, ·892 inch on 12 days in 1900, and 1·054 inches on 9 days in 1899. On the 12th 1·040 inches fell, and on the 14th ·761 inch. The total rainfall at this station from January 1 to March 31, inclusive, was 13·602 inches on 65 days, compared with 6·006 inches on 41 days in the first quarter



of 1902, 6·635 inches on 39 days in that of 1901, 10·631 inches on 57 days in that of 1900, 9·929 inches on 48 days in that of 1899, 4·767 inches on 40 days in that of 1898, and 10·086 inches on 57 days in that of 1897. The extremes of temperature were—highest, 54·7° on the 19th ; lowest, 32·5° on the 2nd.

Dr. Arthur S. Goff reports that at Lynton, Dundrum, Co. Dublin, rain fell to the large amount of 4·53 inches on as many as 28 days, compared with 2·20 inches on 13 days in March, 1901, and 1·98 inches on 18 days in 1902. The greatest daily rainfall was 1·00 inch on the 12th. The temperature in the shade ranged from 59° on the 22nd to 34° on the 2nd. The mean shade temperature was 45·7°, compared with 41·2° in 1901, and 46·4° in 1902. Since January 1st, 1903, the rainfall at this station amounts to 11·36 inches on 62 days, compared with 6·71 inches on 40 days in the first quarter of 1901, and 7·02 inches on 43 days in that of 1902.

The rainfall at Cloneevin, Killiney, Co. Dublin, was 3·40 inches on 29 days, compared with 1·50 inches on 21 days in 1902, 1·57 inches on 17 days in 1901, ·94 inch on 14 days in 1900, ·67 inch on 9 days in 1899, and an eighteen years' (1885–1902) average of 1·762 inches on 15·6 days. The maximum in the 18 years was 3·59 inches in 1888, the minimum was ·26 inch in 1893. The heaviest fall in 24 hours was ·90 inch on the 12th. The 8th and 10th were the only rainless days. At this station the total rainfall since January 1 was 8·30 inches on 64 days, compared with a fall of 8·17 inches on 62 days in the first quarter of 1900, 5·96 inches on 45 days in that of 1901, and 5·47 inches on 45 days in that of 1902.

At the Railway Hotel, Recess, Connemara, Co. Galway, the rainfall was 8·400 inches on 27 days, compared with 5·860 inches on 20 days in 1902, 4·295 inches on 14 days in 1901, and 1·311 inches on 13 days in 1900. The maximal falls in 24 hours were ·860 inch on the 24th, ·750 inch on both the 1st and the 22nd, and ·700 inch on the 20th. A severe storm blew on the 30th.

At Wellesley-terrace, Cork, the rainfall was 5·45 inches on 29 days. Within the past 25 years this rainfall in March was only once exceeded, namely, in 1897, when 5·57 inches were recorded. The number of rainy days, 29, had never been equalled in any month within the previous 25 years, the nearest approach to it being 28 days in November, 1892, and in December, 1899.

At the Ordnance Survey Office, Phoenix Park, Dublin, rain fell on 27 days to the amount of 3·796 inches, of which ·630 inch was measured on the 19th.

## PERISCOPE.

### TUBERCULOSIS SOCIETY IN WASHINGTON.

A SOCIETY of physicians, clergymen, and others has been established in Washington for the purpose of conducting a campaign of education in regard to tuberculosis. The society purposes to raise funds to carry on a systematic diffusion of knowledge about tuberculosis, its prevention, and the relief of those who are afflicted, by means of public lectures, leaflets, and scientific documents. The work will also be made the subject of special instruction in the public schools.—*Medical Record*, N.Y., March 28, 1903.

### THE CAUSE OF THE SLEEPING SICKNESS.

ACCORDING to Dr. Aldo Castellani, Special Commissioner sent out by the Royal Society, the sleeping sickness of Uganda and the related African regions is due to a special form of streptococcus that has a number of different biological characters, separating it from the well-known pathogenic cocci. It occupies a position between the *S. pyogenes* and the *S. lanceolatus*.—*Medical News*, N.Y., March 28, 1903.

### BOILING AS A METHOD OF STERILISING CATHETERS.

C. B. NANCREDE, M.D., and W. H. HUTCHINGS, M.D. (*Medical News*, New York, January 10, 1903), give the following conclusions arrived at by a long series of experiments in catheter disinfecting :—

1. Although the washing with warm soapsuds is an absolute prerequisite to most methods of chemical sterilisation and is an excellent precaution, in the method of employing caloric we recommend, it is not necessary, as shown by Experiments 84 to 91, where no difference was observed in the time and thoroughness of sterilisation when this precaution was omitted, when compared with Experiments 78 to 83, where previous washing was done.
2. One of the chief obstacles in the way of catheter sterilisation has always been the oily lubricants. The boiling temperature promptly liquefies the vaseline usually employed, which will be seen floating upon the surface of the fluid, mechanically carrying away with it numerous germs mingled or adherent to the cold, semi-solid lubricant.
3. The English catheter is more readily sterilised than the soft-rubber instruments, and, what is of greater importance, can be repeatedly boiled without material damage, if

proper precautions are taken. 4. Experiment 65 (first paper) shows that the English web catheter can be boiled for any length of time without damage in a saturated solution of ammonium sulphate. As this boils at  $104^{\circ}$  C. it is superior to plain water, but subsequent washing in sterilised water is requisite to remove the crystals of the salt which are deposited on cooling. 5. The only precautions requisite in boiling English catheters in plain water are those necessary to prevent their coming directly in contact with the bottom of the vessel in which they are boiled: this can be done by enveloping them in gauze, or a towel. 6. Finally, these numerous experiments incontestably prove that (a) caloric can be successfully employed for all varieties of catheters with the exception of the soft French instrument, provided all air is expelled from the interior; (b) that this essential having been secured, although in a great majority of cases five minutes immersion in water which is actually boiling will suffice, ten minutes of actual ebullition should be employed, especially for the smaller calibred instruments: and (c) that a previous cleansing with warm soapsuds is desirable, although not essential, reducing as it does the time of exposure requisite to sterilise the instruments. As previously stated, the employment of a saturated solution of ammonium sulphate is desirable for English catheters, but is not essential, and detracts from the simplicity of the method.

#### ÉCOUVILLONAGE.

THE Paris School may be said to favour scraping the septic uterus, but have modified routine curettage by using a bottle-brush (*écouvillon*) of short strong quills. Budin (*L'Obstetrique*, 1901, July) says that he has used it since 1892, and reports the cases at the Clinique Tarnier from November, 1900, to July, 1901. In 33 cases from outside, 4 had only intrauterine injection, 13 prophylatic écouvillonnage, 16 digital curettage and écouvillonnage. One only died. On 59 cases beginning in the clinique, 5 had only injection, 54 écouvillonnage. None died. From the details given in the tables it would seem as if the cases and perhaps the causes of fever were too diverse to make a comparison of these results with those under other methods quite fair. Lea concludes his summary with a warm recommendation of the method from his personal experience. It is more painful than curettage, and needs anæsthesia.—*The Scottish Medical and Surgical Journal*, April, 1903.

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